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JUNE, 1909.

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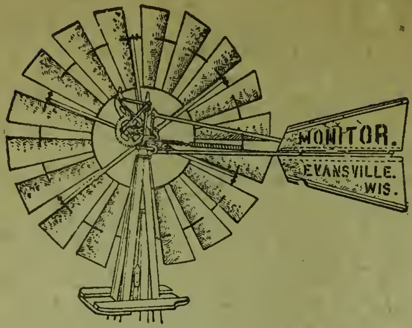

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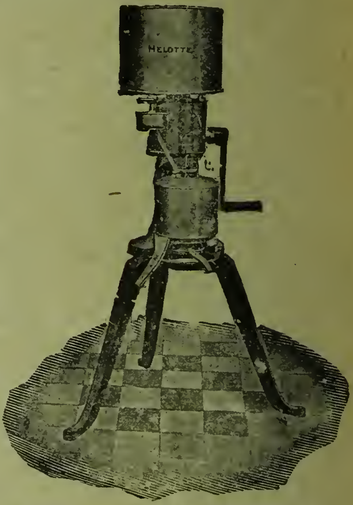

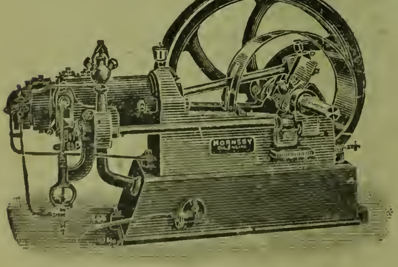

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E. H. COOMBE,
Minister of Agriculture.

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POINTS FOR PRODUCERS.

Government Prizes for Wheat.

In connection with the three prizes for new or improved varieties of wheats offered by the Government, there has been a fairly good entry. For the Upper North District the following wheats have been entered :—Selected Dart's Imperial, by Mr. J. Howard, of Yongala ; selected Federation, by Mr. F. Coleman, of Saddleworth ; and Alpha, by the West Australian Department of Agriculture. For the North of Adelaide District the entries are :—Selected Federation, by Mr. F. Coleman, Saddleworth ; Crossbred 73, by West Australian Department of Agriculture ; Richter's Eminence, by Mr. W. Richter, Gawler ; Flinders, by Mr. E. G. Blesing, Bangor ; Hardy's Elation, by Mr. A. Hardy, Smoky Bay. For the South of Adelaide District Mr. W. Champion Mills, of Native Valley, enters Red Gamma and White Gamma ; Mr. J. Frame, Mount Barker Springs, selected Comeback ; West Australian Department of Agriculture, Crossbred 53. These competition wheats will be grown by the following farmers on behalf of the Agricultural Department :—Upper North—Messrs. J. Smith, Hawker ; J. McColl, Kingswood ; M. Corcoran, Hammond ; T. H. P. Tapscott, Walloway ; and A. Carmichael, Telowie. North of Adelaide—Messrs. A. Miell, Crystal Brook ; A. Cousins, Bute ; S. F. Potter, Lipson ; the Agricultural College, Roseworthy ; G. C. Neville, Balaklava. South of Adelaide—Messrs. A. D. Hair, Kanmantoo ; Koch Brothers, Lameroo ; H. Milne, Bordertown ; Kybybolite Experimental Farm ; and M. Rankine, Strathalbyn. For comparative purposes the variety of wheat which has previously done best on each farm will be grown alongside the competition wheats. The arrangements for the cultivation and judging of these wheats are in the hands of a committee consisting of Messrs. C. Willcox (chairman), J. Miller, A. M. Dawkins, Professor Perkins, and Professor Angus, with Mr. W. L. Summers as secretary.

Quinn's "Fruit-tree Pruning."

A new edition of Mr. Geo. Quinn's "Pruning of Fruit-trees" is now in the press. This work, so favorably known to all Australian fruitgrowers, whether professional or amateur, will now be issued as a third edition of 5,000 copies with the title "Fruit-tree Pruning: a Working Text-book for the Fruits of Temperate Australia." Since the second edition was published eight years ago, many new and more appropriate plates have been obtained from photographs taken by Mr. Quinn in the various States, and these will figure in the new edition, which will probably be ready about the end of June. The price will be 1s., exclusive of postage. The book is in great demand, not only in South Australia, but in the adjoining States

The Wheat Commission.

Since the Progress Report of the Royal Commission on the Marketing of Wheat was presented to His Excellency the Governor, the members of the Commission have visited various parts of South Australia and taken evidence at Kybybolite, Wolseley, Bordertown, Port Pirie, Wallaroo, Port Wakefield, Hamley Bridge, Mount Gambier, Port Augusta, Quorn, Cowell, Kapunda, Eudunda, Tumby Bay, Port Lincoln, and Mallala. Quite recently evidence has been taken in Melbourne and other parts of Victoria, and the final trip of the Commission will be to the Northern Areas, when witnesses will be heard at Orroroo, Terowie, and Gladstone.

Planting Fruit Trees.

The Horticultural Instructor (Mr. G. Quinn) writes :—" Judging from the numerous inquiries made during the last few days there appears to be very much doubt respecting the best time to plant different kinds of fruit trees. Past experience shows that June is too late for the planting out of citrus trees, as the ground temperature has begun to decline, and root action practically ceases for the time being. Of course exceptions may be found, and the chief one is whether trees are lifted with a ball of earth attached in which practically all the roots remain intact. In this case there is little or no danger of the roots decaying, but where the trees are large, and the soil has been shaken off and the roots broken, no activity will be shown in the direction of repairing the broken ends until spring, and by that time it is most likely that decay will have commenced. In most districts the best time for planting deciduous trees is in the early winter, although in some localities late winter planting has been successfully tried. In late winter planting, however, great care has been taken to retain the moisture in the soil by suitable tillage. On the whole I would advocate early planting—that is during May and the early part of June—because a certain amount of rooting will begin to repair the injury done to the tree in transplanting before it finally geos to rest for the winter. Any person who wishes to test this may readily do so by lifting young trees early in May and merely heeling them in by the roots for a month or six weeks, when, if carefully lifted, they will be found to have made great numbers of small white roots several inches in length, and the broken ends of the larger roots will be seen to be more or less callosed over, and so preventing the possibility of infection by germs of decomposition. A demonstration of this proves of very great value, because it shows to the planter that it is almost impossible to lift these trees again without breaking off great numbers of young, brittle, and very valuable roots. The common practice is to obtain the trees before the soil is ready for their reception, to heel them in for some weeks, and then plant them as may be convenient. This course is to be greatly deprecated, because a check is given by the breaking off of the newly-formed roots, and more harm is done than if the tree had been allowed to stand in the nursery bed until planted in the orchard, even although the temperature of the soil had declined considerably by that time. It is the second check that apparently devitalises the plant.

Wheat Straw.

In the April issue "W.H.N." asks which variety of wheat straw is most appreciated by stock. Mr. F. F. Payne, of Rhine Villa, writes that he had found Steinwedel straw preferable to any other variety he had grown. Another correspondent advises that his stock appear to relish Federation straw, while some time ago one of our Bureau members who was trying eight or nine varieties of wheat side by side reported that Jonathan was eaten out first.

Tillage of Orchards.

The Horticultural Instructor (Mr. G. Quinn) writes:—"In connection with the tillage of orchards in the open country where the rainfall is only a trifle over 20in., the soil should be broken up roughly in the early winter and allowed to remain in that condition until the beginning of spring. Then ploughing or digging should be done with a view to exposing as big a surface of the soil as possible to the action of the elements, and with a view to the absorption of all the rain which falls. Weeds will possibly grow on the roughly-ploughed ground, but not much notice need be taken of these, as they will be turned in before they have extracted sufficient moisture from the soil to become a serious detriment to the trees. In wetter localities, such as in our hilly districts, early ploughing is a very questionable practice, and our best orchardists have come to the conclusion that it is desirable to leave the ground fairly flat and growing a crop of grass or weeds until the early spring, so that the soil may be held in position. The land should be worked as soon as the teams can get on it, and sufficient moisture will then be retained to enable the trees to go through the summer successfully. It will possibly be news to many of our older orange growers that the proprietor of one of the largest orangeries in South Australia has recently procured a subsoiling plough, and intends to break up a fair proportion of the space between the rows with this instrument, as he is convinced that the continuous application of water year after year combined with a shallow tillage, that has been followed in the past, tends to bring the subsoil into a condition totally unsuited for the penetration of the roots of citrus or other trees. This departure from the ordinary method of cultivation will be watched with considerable interest, but if the work is judiciously done, and is combined with other good cultural methods, no fear need be felt as to the result."

Imports and Exports of Fruit and Plants.

During the month of April the Inspectors under the Vine, Fruit, and Vegetable Protection Act of 1885 admitted at Adelaide 7,320bush. of fresh fruits, 4,629 bags of potatoes, and 42 packages of plants from inter-State sources. At the same time 796bush. of fruit were destroyed, being chiefly over-ripe bananas. The exports to inter-State markets consisted of 7,793bush. of fresh fruit, 31 packages of plants, and 2,680 packages of vegetables. Under the Commerce Act 12,361bush. of fresh fruit, 28 packages of preserved fruit, 1,095 packages of dried fruit, and 113 packages of honey were exported. These were consigned as follows :—For London, 3,502bush. apples, 1,371bush. pears, 75bush. quinces, 1,093 packages dried fruit, and 113 packages honey ; for Germany, 3,953bush. apples, 471bush. pears, 110bush. quinces ; for New Zealand, 1,989bush. grapes, 15 packages preserved fruit, and two packages dried fruit ; for India and East, 764bush. apples, 6bush. pears, 100bush. grapes, 20bush. quinces, and 13bush. preserved fruit.

Dung as a Fertiliser.

Its intimate connection with vegetable matter is the secret of the durability of farmyard manure. It is slowly severed, and during the long-continued processes of decomposition, the saline materials are disengaged, and offered to the rootlets of growing plants. We also know that the process is arrested at low temperature, and quickened in growing weather, so that the gradual emancipation of fertilising matter from dung is regulated to the requirements of vegetation, and proceeds most rapidly in summer. The bulk of farmyard manure—*i.e.*, its moisture and organic matter—is not valued per *unit*, as in the case of phosphoric acid, nitrogen, potash, lime, or magnesia. It is not priced out, but no one can doubt the value of bulk, and of moisture. The mechanical value of dung is probably incapable of being assessed, and depends a great deal upon the character of the soil and the season. If applied in a dry state, in dry weather, even dung may act injuriously ; but ultimately it must be beneficial to any soil. Dung is not a special, but a general manure ; and cannot therefore be used in order to restore a single ingredient which may be found deficient, or which is required in large quantity by a particular crop. It, however, is able to keep up and increase the fertility of the soil, especially when enriched by foods purchased, better than any special or fabricated fertiliser—JOHN WRIGHTSON.

A Hint to Fruit Exporters.

The Victorian authorities have intimated to the South Australian Department of Agriculture their determination to either insist upon the production of fumigation certificates with consignments of citrus fruits which show any traces of red scale, or the fruit must be treated on arrival in Melbourne at the Government fumigating chamber. In the letter sent by the Victorian Department of Agriculture a complaint is made that the inter-State arrangement with regard to permitting slightly diseased fruit to enter their State for the purpose of being utilised in factories has been abused by South Australian exporters, who appeared to have gathered together all the badly scale-infested fruits and transmitted them to Melbourne. The letter states that this was not the intention of the agreement between the States, as it was only meant to apply to fruit which on examination was found to be slightly infected with some kind of insect pest or disease which could safely be permitted to go to the factory, so that the exporters and importers need not suffer complete loss of their fruit. The Victorian regulations require factory owners to enter into a bond of £500 that such fruit will be treated in the factories, but up to the present only one firm has given this bond.

Importation of Victorian Apples.

The Horticultural Instructor (Mr. G. Quinn) writes :—" Owing to the shortage of the apple crop last season great numbers of apples are being introduced from Victoria to supply local demands. The chief varieties imported are Jonathan and London Pippin, and their condition is excellent. They are brought over by rail from Melbourne and are placed in cool stores in Adelaide under State quarantine bond, and are examined by an inspector. Several persons have written to the Department of Agriculture expressing fear that the fruit fly would be introduced to our State by the importation of these apples; but it should be pointed out that, although in certain parts of Victoria outbreaks of the so-called Mediterranean fruit fly occurred a little over two years ago, the two seasons which have elapsed have shown practically an entire absence of the pest. Though the claim of the Victorian authorities to have stamped out the pest is open to question, either their efforts or the restricting influences of the climate appear to have had the effect of practically destroying the fly; and, under the circumstances, we do not consider we would be justified in placing any further restrictions upon the importation of Victorian apples than those now observed."

Decay of Orange-Tree Roots.

During the last few months a number of orange trees in full bearing in the orangeries along the Para Para River, at Salisbury, have been showing symptoms of declining, and the fruits have failed to develop. At the request of a number of growers a visit of inspection was paid to several of these gardens by Mr. G. Quinn, the Horticultural Expert, and an examination of the trees was made. Trees were dug out and the roots were traced for a considerable width and depth, and it was observed that the roots which ran within a foot of the surface of the soil were decaying, whilst those which had struck down a depth of over 5ft. appeared to be in normal health. The decline of the trees could not be attributed to stagnation, and there seemed to be an utter absence of the so-called collar rot disease. The horizontal roots up to an inch in diameter which spread along just below the cultivated layer had died from the terminals backwards towards the stem and within about a couple of feet of the trunk. The cause of this is somewhat puzzling; but, judging from the information supplied by the owners, it would appear as if the lack of penetration on the part of the irrigation water had had something to do with the decay of the trees. It is very possible that insufficiency of water, rather than an over supply, has had something to do with the defect.

The Sparrow Pest.

In England the annual loss from the house sparrow is estimated at three-quarters of a million sterling. We find the Board of Agriculture branding it as "a serious pest of farmer and gardener alike," and recommending its extermination or suppression as far as possible. The first sparrows were introduced into America in 1850. For a long time the attempts to establish the bird were unsuccessful, but in the course of 25 years, during which sparrows to the number of 1,631 were introduced to 15 places directly from Europe, they were spread purposely to 92 towns. This was about 1870-75, and from then up to 1888 the birds multiplied with marvellous rapidity. Everywhere—in England, in America, and Australia—the sparrow has proved itself an enemy of insectivorous birds. In Pennsylvania the native birds rapidly and steadily diminished in numbers with the advent of the sparrow. The bird was introduced into certain towns in America with the hope that it would rid the elms and shade trees of the caterpillars which annually defoiled them. The utter futility of this hope is demonstrated in hundreds of cities and towns which are overrun with sparrows and where the trees are repeatedly defoliated by worms. In New York it was found that the sparrows actually protected the caterpillars of the tussock moth from their other enemies, and led to an extraordinary increase of the pest.

ENQUIRY DEPARTMENT.

Any questions relating to methods of agriculture, horticulture, viticulture, dairying, &c., diseases of stock and poultry, insect and fungoid pests, the export of produce, and similar subjects, will be referred to the Government experts, and replies will be published in these pages for the benefit of producers generally. Inquiries received from the question-boxes established by Branches of the Agricultural Bureau will be similarly dealt with. All correspondence for this department should be addressed to "The Editor, *The Journal of Agriculture*, Adelaide."

FOREIGN MATTER IN COW'S EYE.

"W.W." writes, asking for best treatment to remove a piece of chaff from a cow's eye—the chaff had been in the eye for three days, and a skin appeared to have grown over it.

Veterinary Surgeon Desmond replies :—"Foreign bodies, such as chaff, can only be removed from the eye by the use of local anæsthetics. Apply a little 5 per cent. solution of cocaine to the eye with a medicine dropper, by pulling out the lower lid. After three or four minutes the eye will be insensible to pain, and the chaff or other foreign body can be removed with a pair of forceps. The cloudy appearance of the eye is the result of inflammation set up by the presence of the chaff, and will disappear upon its removal. Much cruelty is often practised by owners of stock in treating simple ailments of the eyes of animals. The outer covering of the eye is sometimes destroyed by the application of salt and powdered glass, and permanent blindness results."

BONEDUST AND BONE SUPER.

"Islander," writes :—"Can you tell me whether bone super. will give as beneficial results for wheat, barley, or oats as bonedust ? Will the action of the acid in bone super. give out before a crop of any of the above cereals matures, and which of the two yield mostly to the plant in its early stages ?"

The Inspector of Fertilisers replies :—"It is not possible to answer the first question definitely, as only direct experiments will give the desired information. Under differing conditions the results will be different. Bone super. consists of partly dissolved bone, and is more quickly available than bonedust. There is no fear that it will all be exhausted before the plant matures, as quite half of it is still undissolved or partially dissolved bone. Under ordinary circumstances the effect of both bone super. and bonedust will last more than one season."

GREEN AND DRY BONES.

"A.F.," Edwardstown, writes :—"Can you give—(1) The analysis of green cut bone, and (2) the superiority (if any) of green bone over dry bone as a fertiliser ?"

The Inspector of Fertilisers replies :—"What is meant by green cut bone ? No commercial bonedust really answers to this description, as the bones are not all 'green,' Further, the bones themselves differ in their percentage of phosphate of lime. Most of the bonedust used in this State is steamed under pressure, and the bones are partially disentegrated. Authorities differ as to whether bonedust made from steamed bones is equal to or better than the unsteamed, but the majority favor steamed bonedust, as being readily soluble. In unsteamed bones there is usually more nitrogen, but the fat retards the decomposition of the bonedust. Local experience inclines me to the opinion that the governing factor is the condition and character of the soil, as one grower gets better results from steamed bonedust, and another, as a result of experience, favors the unsteamed."

INNOCULATION OF LEGUMINOUS PLANTS.

"H. G. S.," Angaston, writes to say that he proposes to sow cow peas in his orchard for green manuring purposes, and asks whether nitrogen-fixing bacteria, with which to infect the seeds, can be obtained in South Australia ? He also inquires whether it is desirable to innoculate the seed before sowing ?

The Horticultural Instructor (Mr. G. Quinn), replies :—"I am not aware whether a specific culture designed for innoculating the seeds of the cow pea is obtainable, but cultures for various legumes have been advertised by Mr. E. B. Cox, seedsman, of Rundle Street, Adelaide. I question very much whether the experiment will prove a success, as so far the tests made by the officers of the department in the innoculation of field peas and one or two other leguminous plants have not given any good results. The bacteria indigenous to South Australian soils seem to be able to assimilate themselves with many kinds of leguminous plants, and this appears to be more particularly marked where dressings of phosphatic manures have been applied to the ground for several years. Whilst not wishing to discourage experiments, I think that possibly better results would be obtained from the use of fairly heavy dressings of superphosphate, finely-ground bonedust, or Thomas' phosphate with the seed when it is being sown. From 2cwts. or 3cwts. of these manures could be tried, and no doubt the peas, or tares, or legumes that might be used would get such a strong start that they would be able to afford abundant rootage for the bacteria. The adding of a light dressing of sulphate of ammonia or nitrate of soda at the rate of from ½cwt. to 1cwt. per acre would give a considerable stimulus to the young plants, and thus enable them to get a stronger roothold."

CURL LEAF ON PEACHES.

" W. F.," Waikerie, writes to say that last year, dry as the Murray Valley climate is, his Elberta peaches were badly affected with curl-leaf fungus, and he desires to know whether Bordeaux mixture can be bought already mixed, and whether Swift's arsenate of lead is any good in checking this disease? He also states that the Rutherglen fly-bug, which appeared to come from a lucerne patch, was very bad on the peach and nectarine trees. He was informed by an entomologist, to whom he referred the matter, that red spider was the cause of the damage, and that the so-called Rutherglen fly was a harmless insect. He was, however, unable to find any trace of red spider.

Mr. G. Quinn replies :—" I do not advocate the use of prepared Bordeaux mixture, but the so-called Burgundy mixture, in which the ordinary washing soda is used as a substitute for fresh lime, could be procured in the dry state, or the ingredients—copper sulphate and sodium carbonate—may be obtained and kept for any reasonable length of time without deterioration. The strength recommended to be used is 6lbs. of bluestone (copper sulphate) and 9lbs. of washing soda (sodium carbonate) to 50galls. of water. Dissolve these two solids separately, and, after thinning down the solution, blend them together for spraying. I have found that on the plains of Adelaide these have proved to be quite as effective against curl-leaf fungus as the ordinary Bordeaux mixture. Swift's arsenate of lead is a poison for leaf-eating insects, and no fungicide properties have been claimed for it. With regard to the harmlessness of the Rutherglen bug, I would like to say that at certain times it becomes exceedingly destructive, puncturing the skin of the leaf or twig and sucking out the sap. All growers of peaches and apricots along the River Murray know only too well how very injurious this insect can be when it attacks those fruits just at the softening stage, while on the plains of Adelaide some vineyards were very severely injured by it during the spring of last year. I have seen plantations of early tomatoes destroyed by its ravages in the spring time."

RUPTURE IN FOALS.

" A. J. K." asks for treatment of a foal badly ruptured. Outline of condition—" Poor, languid at times, testicles swollen as large as an old stallion; even at birth they were larger than they should have been."

Veterinary Surgeon Desmond replies :—" The best course to follow is to leave the rupture alone. This form of rupture is quite common in foals, and usually disappears without treatment of any kind when they are 12 months old."

CULTIVATION OF THE POTATO.

EXPERIMENTS WITH VARIETIES.

By W. Angus, B.Sc.

An adequate test of several varieties of the potato involves in ordinary practice a large amount of time and trouble, which the average grower hardly cares to give. The following results, therefore, of trials with different varieties will doubtless prove of interest to potato-growers. It is generally admitted by growers that from time to time there is need for a change of seed. In the old country men who have had long experience in potato-growing, and who have been most successful in this industry, recognise this necessity. Most marked results have been obtained in many of the English counties in this way by introducing seed from the eastern counties of Scotland. Of late years, too, many experiments have been tried and proved successful in introducing new strains of seed into districts in Ireland. With this end in view authority was obtained to import small quantities of the best varieties of British potatoes, and these were grown on the Experimental Farm, Murray Bridge, during 1908.

The following table indicates the results obtained at Murray Bridge :—

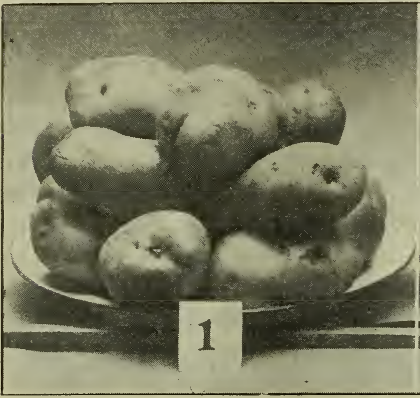
Variety.	From Whom Obtained.	No. of Sets.	Weight Planted.	Yield.
			lbs.	lbs.
Early Regent	Sutton	149	13½	129½
Duke of York]	“	96	14¼	62½
May Queen	“	116	13	157
Ruby Queen	Findlay	81	12	56½
Klondyke	“	113	12½	210
Royal Kidney	“	105	13	206½
British Queen	“	76	13½	194½
Ninetyfold	Sutton	109	13½	113
Up-to-Date	Findlay	77	13	187
Challenge	“	88	13	138½
Discovery	Sutton	108	13	94¾
Queen of the Veldt	Findlay	79	13	109
Totals	—	1,197	157¼	1,658¾

Part of the produce was forwarded to Mr. P. H. L. Brown, of Stirling West, and sown during the first week in October, 1908. The potatoes were planted in rows 22in. apart, and manured with bonedust. The varieties used in the test were Queen of the Veldt, Royal Kidney, Ninetyfold, Early

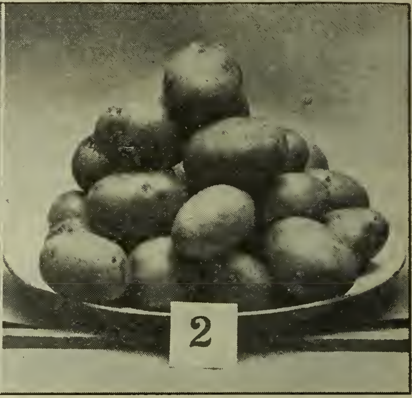
Regent, Duke of York, May Queen, Klondyke, British Queen, Up-to-Date, Challenge, Discovery, and Ruby Queen. The chief characteristics of each variety are as follows :—

Early Regent (*No.* 1).—An early variety, somewhat irregular in shape, with firm white flesh and smooth skin ; eyes shallow.

Duke of York (*No.* 2).—An early variety, one of the first to ripen, top medium in size ; potatoes fairly long, approaching the oval type, and they are of good shape ; skin slightly rough, and has a yellowish tint ; eyes are very shallow.



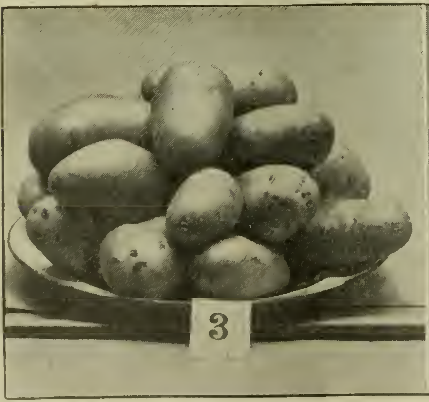
Early Regent.



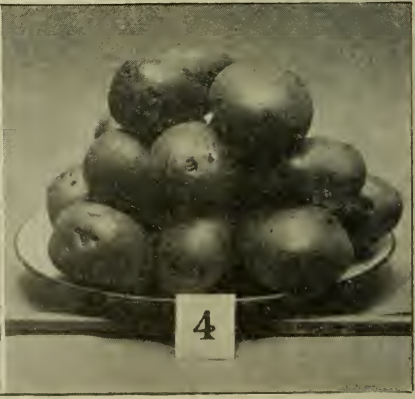
Duke of York.

May Queen (*No.* 3).—Another early variety, with clear smooth skin ; tubers large and oval shape ; eyes fairly deep.

Ruby Queen (*No.* 4).—Early variety ; tubers well shaped, with dark-purple skin ; skin medium smooth, firm flesh ; eyes fairly shallow.



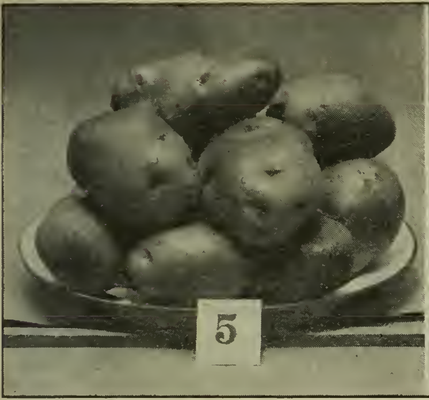
May Queen.



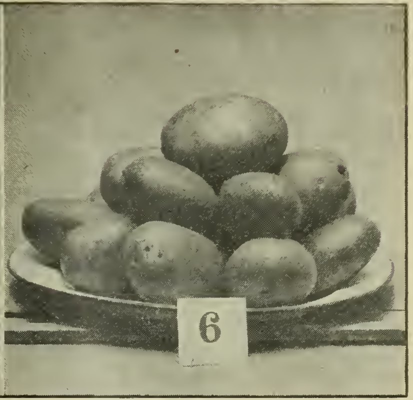
Ruby Queen.

Klondyke (*No.* 5).—An early variety, with large oval tubers of good shape; skin somewhat rough, of light-golden color; eyes deep.

Royal Kidney (*No.* 6).—Mid-season variety; tubers long and of good shape; skin white and fairly smooth; eyes shallow.



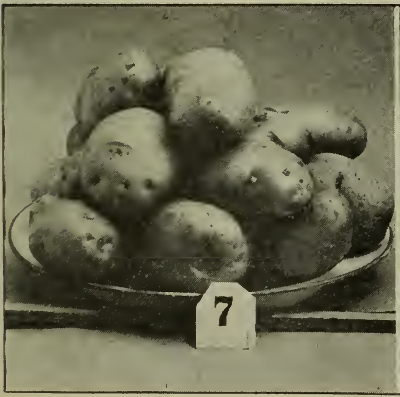
KLONDYKE.



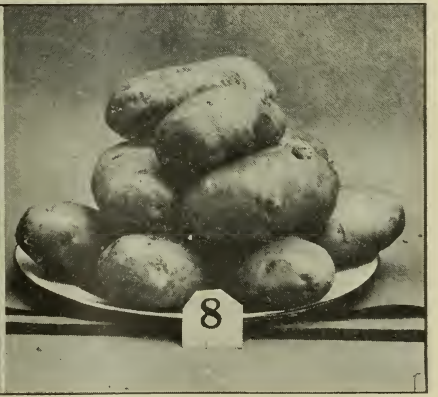
ROYAL KIDNEY.

British Queen (*No.* 7).—A mid-season variety, with medium size top; oval tubers, somewhat flattened; skin, which has a good appearance, is moderately white and slightly rough; eyes fairly shallow.

Ninetyfold (*No.* 8).—Fairly large top, with somewhat spreading habit; tubers kidney-shaped, narrow at one end, and bulging below the eyes—giving the surface of the tuber a somewhat irregular appearance; skin smooth and white, and the eyes are rather deep.



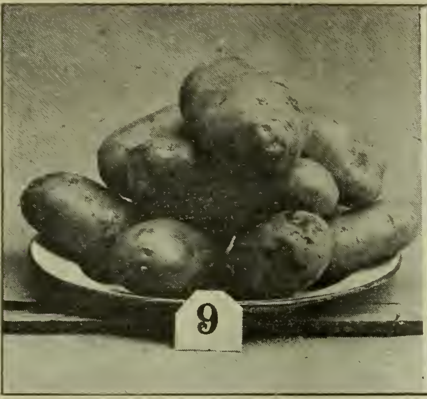
BRITISH QUEEN.



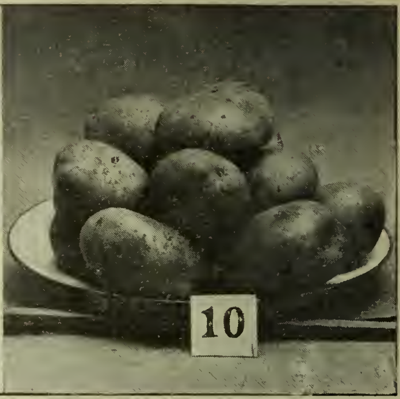
NINETYFOLD.

Up-to Date (*No.* 9).—A mid-season variety; tubers fairly long, oval, and slightly flattened; eyes shallow; skin fairly smooth.

Challenge (*No.* 10).—A mid-season variety, with medium to large well-shaped tubers; eyes shallow; skin somewhat rough.



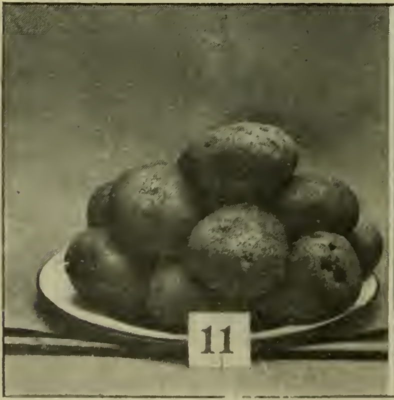
Up-to-Date.



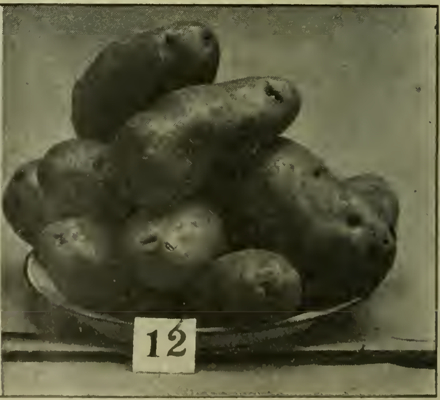
Challenge.

Discovery (*No.* 11).—A very distinct variety, easily distinguished by its upright bushy tops, which retain their green color for a long time; tubers oval, of excellent form, slightly flattened; skin somewhat rough and pinkish in color; eyes shallow.

Queen of the Veldt (*No.* 12).—A mid-season variety, with large oval tubers; skin fairly smooth, with dark-ruby tint; eyes somewhat prominent.



Discovery.



Queen of the Veldt.

The following table summarises the yields of these varieties at Stirling West :

Variety.	Size of Plot.	Amount Planted.	Return per Plot	Return per Acre.		
	sq. ft.	lbs.	lbs.	tons	cwts.	lbs.
Queen of the Veldt	756	36	616	15	13	56
Royal Kidney	1,365	65	924	13	4	0
Ninetyfold	735	35	450	11	17	6
Up-to-Date	1,218	58	672	10	16	0
British Queen	1,470	70	812	10	10	28
Challenge	882	42	462	10	2	14
Discovery	630	30	280	8	12	56
Early Regent	819	39	320	7	11	56
May Queen	1,176	56	370	6	2	26
Ruby Queen	252	12	70	5	8	0
Klondyke	1,407	67	330	4	11	38
Duke of York	336	16	70	4	1	28

These potatoes will be given a further trial during the coming season at Mount Barker and Mount Gambier. At each of these centres they will be grown alongside local varieties, and compared for their cropping and keeping qualities.

MURRAY BRIDGE.

ROSEWORTHY AGRICULTURAL COLLEGE.

THIRD REPORT ON THE PERMANENT EXPERIMENT FIELD—SEASONS 1907-8 AND 1908-9.

By ARTHUR J. PERKINS, Principal Roseworthy Agricultural College, and W. J. SPAFFORD, Assistant Experimentalist.

INTRODUCTORY.

In this report are given for the first time results secured in the Permanent Experiment Field during seasons 1907–8 and 1908–9. Two earlier reports on this field have already been issued, one concerning the 1905–6 season, published in full in the April, 1906, number of the *Journal of Agriculture of South Australia*, and the other concerning the 1906–7 season, published in the September, 1907, number of the same periodical. For full details on the general arrangement of the experimental work in this field we must refer those interested to the earlier reports. On this subject we must content ourselves with stating here that what is known as the Permanent Experimental Field covers 122 acres, divided up into 61 plots, two acres in area each, submitted yearly to a line of treatment which will be indicated under each separate heading in the present report. The land of this field is on the whole rather heavy and characteristically good wheat land. In a few plots, however, travertine limestone ridges push their way into the alluvial clay, with their usual covering of soil lighter in texture.

As we are now in possession of the yields in this field from four successive harvests, we propose in this report discussing the inferences to be derived from the average results. We do not, however, disguise from ourselves the fact that not even the results of four harvests give us the right to be over-emphatic in the matter of dubious agricultural practice ; as much as possible, therefore, we shall endeavor to trim the wings of speculation.

DISTINCTIVE CHARACTERISTICS OF THE FOUR SEASONS.

It is obviously of advantage in a report of this kind to give a short abstract of the characteristic features of the several seasons concerned. This, therefore, we propose doing by way of preface to our various discussions, and we shall begin by indicating the monthly distribution of the rainfall on the College farm during the course of these four seasons, comparatively with the mean distribution of the past 25 years.

TABLE I.—*Showing Monthly Distribution of the Rainfall on the College Farm from* 1905 *to* 1908 *comparatively with the Mean Distribution of the past* 25 *Years.*

	1905.	1906.	1907.	1908.	Mean of Past 25 Years.
	Inches	Inches.	Inches.	Inches.	Inches.
January	2·27	—	0·05	0·48	0·91
February	0·13	0·08	0·33	0·43	0·48
March	0·08	2·64	0·17	1·09	0·73
April	2·10	0·45	2·79	0·76	1·93
May	2·24	0·99	1·96	3·36	1·70
June	2·07	2·84	1·57	2·89	2·72
July	2·58	1·99	1·15	1·42	1·83
August	0·87	3·35	2·25	1·79	2·05
September	1·17	2·65	1·08	3·09	1·67
October	2·95	1·77	1·22	2·15	1·61
November	0·25	2·26	1·86	0·07	0·99
December	—	0·70	0·62	0·21	0·77
Yearly totals ...	16·71	19·72	15·05	17·74	17·39

Briefly, and in the most striking features, the four seasons may be described as follows :—

Season 1905–6 was characterised by exceptionally favorable seeding weather ; by a wet, cold winter, without, however, much frost ; by a late and cold spring ; and finally by an almost complete absence of hot north winds at the time of the year when the wheat plants, and particularly the grain, are most liable to injury by them. It proved an unusually late season, and one that was very favorable to the wheatgrower ; crops developed slowly and steadily, and ripened off without the slightest accident. Ultimately both hay and grain yields were exceptionally heavy and of excellent quality.

Season 1906–7 opened with unfavorable seeding weather and a very dry winter. The winter months were exceptionally mild and practically frostless, whilst the spring months were unusually moist, culminating, however, in unseasonably sudden hot north winds. In the Permanent Experiment Field germination was in several of the plots very unsatisfactory, and some had in consequence to be resown. The mild winter, followed on by a moist spring, led to excessive rankness of growth in the crops, causing them to blight off to a considerable degree on the first touch of the north wind. In the end hay crops were exceptionally bulky and inferior in quality, whilst much of the grain was shrivelled and equally inferior.

Season 1907–8 opened with weather favorable to seeding operations ; the winter months, however, proved very dry and cold, 18 frosts, some of them exceptionally low, being recorded over June, July, and August. Unfortunately, this cold dry winter was followed up by a hot and dry spring, and had it not been for a heavy downpour early in November the position would have been exceedingly disastrous to the farming community. As it is early crops suffered considerably; both hay and grain were relatively light in yields, but of good quality.

Season 1908-9 provided ultimately very favorable seeding weather, although April rains appeared to hold off to an alarming degree. The winter was again cold and dry, but amply compensated for by copious September and October rains. Crops generally ripened off satisfactorily, with the result that both hay and grain yields were heavy and of excellent quality.

A General Survey of Four Seasons.

A survey of the general results secured in the Permanent Experiment Field over the four seasons of which we have exact record will not be without interest. For the purpose we have summarised below in Table II. the results from four typical Plots, viz., Plots 11 and 12, dressed with 1cwt. of superphosphate; Plots 58 and 59, dressed with 2cwts. of superphosphate; Plots 30 and 31, dressed with 2cwts. of superphosphate and 1cwt. of nitrate of soda; and Plots 26 and 27, which are permanent no-manure plots. It should be stated that each one of these plots is in alternate years treated as bare fallow.

Table II.—*Showing Returns from Four Typical Plots from* 1905 *to* 1908 *inclusivcly.*

Manures per Acre.	Plots	Years.	Total Produce per Acre.			Grain per Acre.	Straw to 60lbs. of Grain.	Weight of Bushel.
			Tons.	Cwt.	Lbs.	Bushels.	Lbs.	Lbs.
1cwt. superphosphate ..	11	1905	2	11	54	28·93	139	62½
	10	1906	2	8	100	23·70	171	58½
	11	1907	1	8	88	20·52	97	62½
	10	1908	2	11	26	32·78	115	64½
2cwts. superphosphate ..	59	1905	2	7	28	28·17	128	63½
	58	1906	2	11	60	20·82	217	56
	59	1907	0	19	13	14·97	83	64
	58	1908	3	1	111	38·35	121	64½
2cwts. superphosphate, 1cwt. nitrate of soda ..	31	1905	3	4	25	36·02	142	62
	30	1906	2	3	34	22·45	156	58
	31	1907	1	8	95	20·48	98	63
	30	1908	2	15	8	33·45	124	64
No manure	27	1905	2	1	37	25·30	123	62¾
	26	1906	1	16	35	18·30	162	59½
	27	1907	1	0	102	15·87	88	63½
	26	1908	1	11	19	25·08	79	64¼
General average of the four plots	—	1905	2	11	8	29·60	133	62¾
	—	1906	2	5	1	21·32	177	58
	—	1907	1	4	46	17·96	92	63¼
	—	1908	2	9	97	32·42	112	64½

An examination of Table II. will show that of the four seasons 1908 was on the whole the most favorable. In this year the average grain yield of the four plots was close on 32½bush. to the acre, notwithstanding the fact that a quarter of the area involved was carrying a No-manure crop for the second successive year; whilst the Total Produce or Hay yield was approximately 2½ tons to the acre, and the average weight of the bushel of grain 64½lbs. Finally the crop returned 1cwt. of straw and chaff for every bushel of grain gathered in.

The first season, or the 1905 season, was almost equally favorable, with slightly higher hay yield and proportion of straw to grain; but with lower grain yield and lighter bushel weight.

In 1906 hay yield was still relatively heavy, but grain yield only fair, resulting in a very high proportion of straw to grain; the bushel weight was also very low, arising from the blighting of early corps.

Finally 1907 was very unfavorable, with both low grain and hay yields. The proportion of straw to grain was exceptionally low, but the bushel weight relatively high.

ROTATION PLOTS.

This series of plots was established with a view to testing the feasibility of forms of rotation not usually practised in the district. Rotation of crops, in the sense usually ascribed to it, implies the more or less regular succession in a given field of two or more crops different in kind. It may, therefore, be described as the customary order in which crops are made to succeed one another in the field. In the earlier stages of agricultural development farming is as a rule restricted to the raising of one or two main crops, suited to local conditions of climate and soil, and readily disposed of on what markets may be available. These crops will generally be made to succeed one another without interruption on the same ground, and of rotation, strictly speaking, there is none. In the course of time, however, it becomes evident to pioneers that no land, not even the most fertile, can carry to advantage the same crop year in year out. The impression then arises that the land stands in need of periodical intervals of rest, during the course of which it is supposed to recover from a state of temporary exhaustion, and, according to circumstances, the practice of bare fallowing or merely of temporary grazing, tends to replace that of continuous cropping. Such a practice must imply that to arrive at net results double or treble rental value of land that lies idle for two or three years must always be deducted from profits realised on main crops; and, indeed, so long as large areas of arable land continue abundantly available and land values remain low, the main crops will not find themselves unduly burdened by these additional charges. With the inevitable increase of population, however, comes a time when land values must rise, with the result that the farmer can no longer afford to see half or two-thirds of his farm lying idle each year; and it is then that some sort or other of rotation is by circumstances imposed upon him. There is no doubt that we in the Lower North are in this respect fast coming to the parting of ways, and the position that faces us is that with land values varying from £8 to £12 an acre, can we continue unaltered the practice that proved satisfactory when they did not exceed £2 to £4 an acre?

It was in the hopes of finding some solution to this question that this series of plots was established; and, whilst we cannot as yet pretend to have definitely attained this object, we believe that we have at least made a few steps in the right direction. The difficulties surrounding the position may be included in the two following questions:—

1. Is it possible, under Lower North conditions, to grow wheat profitably in rotation—that is to say, without the regular intervention of more or less wasteful bare fallow?

2. And if the first question be answered in the affirmative, what subsidiary crops may be availed of to advantage to prepare the way for the wheat crops?

CAN WE GROW WHEAT TO ADVANTAGE IN ROTATION?

On the question as to whether in our midst wheat can be grown to advantage in rotation, we are in possession of evidence that is distinctly favorable if not definitely affirmative. True, it does not represent more than the results of four years' experimental work, and is liable therefore to the modifications of future events; such as it is, however, it is in our opinion worth careful consideration. We have summarised in Table III. what results we have that bear on this point. It will be noted that in this Table, for the sake of clearness, the results from wheat crops alone have been given; those from the subsidiary crops will be taken into consideration in a later section of the report.

If, for the present, we take into consideration exclusively the point as to whether in the Lower North it is possible to grow Wheat to advantage in rotation, we see from Table III. that Plots 2 and 6, both of which had been cropped continuously since 1905, yielded in 1908 on the one hand nearly 27½bush. of grain, and on the other over 31⅓bush. In the same season Plot 10, which had been treated as bare fallow twice in the same interval, yielded a little over 32¾bush. of wheat. We do not wish to generalise unduly, and shall, therefore, confine ourselves to the statement that in a season such as 1908 it is possible on land that has been cropped continuously for four years with crops other than wheat practically to equal returns from wheat grown after bare fallow.

In 1907, of the rotation Plots, Nos. 3 and 7 were under wheat, the former yielding 18⅔bush. of grain and the latter a little over 22bush. In the same season Plot 11, which had been treated as bare fallow in 1906, yielded 20½bush. of grain. Again, therefore, we find wheat in rotation, in the third successive year of cropping, practically equalling wheat after bare fallow.

Table III.—*Showing Returns from Wheat Grown in Rotation Comparatively with those from Wheat Grown after Bare Fallow.*

Plots.	Years.	Cropping.	Total Produce per Acre.			Grain per Acre.	Straw to 60lbs. of Grain.	Weight of Bushel.
			Tons	Cwts.	Lbs.	Bushels.	Lbs.	Lbs.
				Wheat in Rotation.				
2	1905	Peas		—		—	—	—
	1906	Barley		—		—	—	—
	1907	Peas		—		—	—	—
	1908	Wheat	2	14	8	27·47	161	63
3	1905	Barley		—		—	—	—
	1906	Peas		—		—	—	—
	1907	Wheat	1	6	7	18·67	96	62
	1908	Turnips		—		—	—	—
4	1905	Peas		—		—	—	—
	1906	Wheat	2	8	58	19·45	219	?
	1907	Turnips		—		—	—	—
	1908	Barley		—		—	—	—
6	1905	Peas		—		—	—	—
	1906	Oats............		—		—	—	—
	1907	Beans		—		—	—	—
	1908	Wheat	2	12	75	31·37	128	63½
7	1905	Oats............		—		—	—	—
	1906	Beans		—		—	—	—
	1907	Wheat	1	7	32	22·05	79	62½
	1908	Kale		—		—	—	—
8	1905	Peas		—		—	—	—
	1906	Wheat	2	2	53	18·27	200	56½
	1907	Mangolds		—		—	—	—
	1908	Oats............		—		—	—	—
				Wheat After Bare Fallow.				
10	1905	Bare fallow		—		—	—	—
	1906	Wheat	2	8	100	23·72	171	58½
	1907	Bare fallow		—		—	—	—
	1908	Wheat	2	11	26	32·78	115	64½
11	1905	Wheat		—		—	—	—
	1906	Bare fallow		—		—	—	—
	1907	Wheat	1	8	92	20·52	97	62½
	1908	Bare fallow		—		—	—	—

Finally, in 1906 it was Plots 4 and 8 that were under wheat: the former yielding close on 19½bush. of grain and the latter 18¼bush.; whilst in the same season plot 10, after a year's bare fallow, yielded 23¾bush. of grain.

We may conclude, therefore, that in seasons such as have been vouchsafed us over the past three years it is quite possible to raise to advantage Wheat for grain in ordinary rotation. Whether this will continue possible in years to come time only can show.

Before leaving this question of grain raised in rotation, we should note that only slight differences are apparent in the bushel weight of grain, and these generally in favor of wheat after bare fallow. Thus in 1906 the weight per bushel of wheat in rotation was 56½lbs. against 58½lbs. for wheat after bare fallow. It should be stated that both crops were more or less blighted by north winds. In 1907 we have 62lbs. and 62½lbs. for wheat in rotation, and 62½lbs. for wheat after bare fallow. In 1908 we have 63lbs. and 63½lbs. for wheat in rotation and 64½lbs. for wheat after bare fallow.

Let us next examine the position from the point of view of Cereal Hay, taking Total Produce roughly to represent the quantity of hay that would have been gathered in had the crop been cut for hay.

In 1908, for the fourth successive crop, we have about 2¾ tons of hay from Plot 2, and only slightly less from Plot 6. In the same season wheat after bare fallow would have yielded less hay than either plot of wheat in rotation. It follows that the proportion of straw to grain was greater in rotation than after bare fallow.

In 1907 Plot 3, in its third successive crop, yielded the equivalent of a little over 1 ton 6cwts. of hay, and Plot 7 a little over 1 ton 7cwts. On the other hand, Plot 11 after bare fallow yielded the equivalent of nearly 1 ton 9cwts. of hay. In this season, therefore, neither treatment appeared to have influenced to any degree the proportion of straw to grain.

Finally, in 1906, for their second crops Plot 4 yielded the equivalent of over 2 ton 8cwts. of hay, and Plot 8 over 2 ton 2cwts. In the same season Plot 10, after bare fallow, yielded nearly 2 ton 9cwts. Again the proportion of straw to grain was greater in rotation than after bare fallow.

We are therefore able to conclude that, as for grain so for hay, it is possible, with seasons such as we have experienced latterly, to grow wheat profitably in rotation.

Some of the Difficulties Affecting Wheat grown in Rotation.

We have shown it to be possible under recent conditions to grow wheat in rotation at Roseworthy, and inferred therefrom that a year's bare fallow is not absolutely essential to the raising of good grain or hay crops. We do not, however, disguise from ourselves the fact that there exist many practical difficulties in the way of the complete supersession of bare fallow in everyday practice. And these difficulties are very far from being confined to the discovery of suitable subsidiary crops capable of occupying the land advantageously, whilst preparing the way for the wheat crop. Indeed, the principal difficulty may be said to be the special requirements of the wheat plant, so far as the preparation of the soil that is to receive it is concerned. For hardy plant though it be, profitable yields cannot be expected from wheat, except it be sown in soil adequately prepared ; and without a doubt, nothing ensures this better than a year's intelligently worked bare fallow. Wheat almost above all plants stands in need of a perfectly prepared seed bed, with mellow, loose, friable surface, seated on well consolidated lower layers, but offering no insurmountable obstacle to the penetration of the root system. Let us add that the ground must be tolerably clean and free from strong-growing weeds. And if the land that is to carry wheat should have been under crop in the preceding season there is always some difficulty in realising these conditions so esential to good crops. Our summers are to all intents and purposes rainless, and if ground for wheat be broken up in summer or early autumn, before rains supervene, it must inevitably remain open and loose below, and rough and cloddy on the surface, *i.e.*, just what wheat seed bed should not be. If, on the other hand, we elect to delay ploughing until after the coming of the autumn rains, we shall lose what few weeks of favorable seeding weather are usually vouchsafed to us. Hence if wheat is to be grown in rotation we must avail ourselves of summer ploughing, the work of which will be completed by the energetic and repeated use of roller, cultivator, and harrow ; in other words, tillage operations will as a rule prove more costly than is the case with ordinary bare fallow.

Let us, for instance, see what was the treatment of Plots 2 and 6, both of which, after being continuously under crop since 1904, carried wheat in 1908, the first yielding 27bush. 28lbs. to the acre and the second 31bush. 32lbs.

Plot 2, under Pease in 1907, was ploughed in 1908 from January 21st to 25th, rolled and disc-cultivated on January 28th, disc-cultivated again on February 10th, rolled a second time on March 28th, disc-cultivated a third time on April 2nd, scarified on May 25th, and harrowed on May 26th in front of the seed drill.

Plot 6, under Beans in 1907, was ploughed in 1908 on February 1st, rolled on February 4th, disc-cultivated on February 5th, and again on the 12th, rolled a second time on March 30th, disc-cultivated a third time on April 1st and a fourth time on May 23rd, and finally harrowed before the seed drill on May 25th.

This summary may have the appearance of heavy and unnecessary tillage. Without it, however, the land, which is rather stiff, could not possibly be got in that condition of tilth which alone can ensure the growth of heavy crops.

We are of course aware of the current opinion that bare fallow leads to a greater storage of moisture in the soil than would be the case were the soil under crop or merely left untilled, and that as such it is a practice eminently adapted to our relatively dry districts. We cannot, of course, deny to well-tilled soil the property of absorbing and subsequently retaining a greater quantity of moisture than hard, untilled land. We are nevertheless of opinion that this excellent property of bare fallow has been somewhat exaggerated, and that the principal advantage of this practice lies not so much in the additional moisture it is supposed to hold in reserve, as in the ideal condition of tilth in which it presents the soil at seeding time. It is probable, however, that in winters of exceptional dryness, what additional moisture may lie locked up in bare fallow land, will serve to help along a poorly grown crop.

It is probable, too, that the bacterial action in the soil will be more energetic and more effective in well-tilled early fallow, particularly in the spring months, than in land under crop, or in land that lies untilled. What advantage there is in this direction must, however, disappear in the summer months when the tilled surface soil dries off, and the soil temperature is sufficiently high to put an end to all bacterial action. Hence we assume that wheat grown in rotation will stand in greater need of top dressings of nitrate of soda than wheat after bare fallow; indeed, it has been our practice to dress the plots under wheat in rotation regularly with ½cwt. of nitrate of soda to the acre, which treatment of course adds to the cost of production.

In those countries in which rotation is practised more or less regularly, it is usually customary to make a leguminous crop, such as Red Clover, Pease, Beans, &c., immediately precede the Wheat crop. This practice has the effect of enriching the soil in nitrogen, and counter-balancing to a certain extent some of the advantages of ordinary bare fallow. We shall show in the sequel that we have endeavored to follow out this practice in our rotation experiments.

Finally, it is quite evident that a wheat crop must be cleaner and freer from weeds after bare fallow than when it follows in the wake of some other crop. Quick, rapid-growing, early wheats, particularly when thickly sown, are able to a certain extent, like barleys, to crowd out the majority of weeds when weather conditions are in their favor; not so, however, the slower-growing heavier-yielding late wheats. Weather and soil conditions, however, too frequently favor the weeds and not the wheat, and the result usually is a light, dirty crop; so much so that above all things all practical men will always pin their faith to a clean field, moderately free of weeds. Unfortunately, however careful one may be, weeds will always go to seed in any crop, and if this crop precede a wheat crop, the latter is doomed to suffer more or less in the year that follows. In rotation it is generally recommended that wheat be preceded either by a crop that is regularly horse-hoed throughout its growing period, or else by a smothering crop such as red clover. If a crop such as horse beans be regularly horse-hoed, we can depend on the destruction of the bulk of the weeds. Many, however, will run to seed in the rows unless hand-pulled, a practice that cannot possibly be availed of on anything like a large scale. The rank growth of a well-grown crop of red clover will certainly serve to crowd out weeds ; unfortunately it is not adapted to our special climatic conditions, and it is difficult to find for it an adequate substitute. Hence wheat in rotation will generally be dirtier than the same crop after bare fallow ; and as a palliative we recommend far thicker sowing.

The Subsidiary Crops in a Wheat Rotation.

The fact that in this district wheat crops in rotation have been shown to equal those grown after a year's bare fallow must count for little in ordinary practice, unless we are able to point out a suitable sequence of subsidiary crops, which can occupy the soil profitably over the intervening years. This simple acquired fact is nevertheless not without its value ; it should serve to dispel the common illusion that in these districts good wheat crops cannot be grown without the waste of a year's bare fallow. There are many who look upon bare fallow before wheat as one of those practices that have been evolved out of purely local experience, and which for all time must continue part and parcel of all farming north of Adelaide. We prefer, however, to look upon it as no more than a phase in the development of our rural industries common to all expanding communities, a phase which under the stress of economic factors must in the course of time give way to other methods leading to greater productiveness of the soil and the curtailing of the areas of individual farms.

We do not care to deny that in present circumstances it may prove difficult to light on subsidiary crops calculated adequately to occupy the soil in a rotation ending in wheat. It does not, however, follow that this must always continue to be the case, and however discouraging the present outlook, we shall feel justified in continuing to seek for a solution to this question.

Hitherto in the Permanent Experiment Field we have not had occasion to test more than three forms of rotation, none of which, however, we are prepared to recommend for general local acceptance. In future years we intend extending experimental work in this direction as much as circumstances permit of.

The original scheme for rotation experimental work included two modifications of the well-known Norfolk Four-course Rotation, viz. :—

First Series.	Second Series.
1. Cereal ensilage crop.	1. Mangolds.
2. Barley.	2. Oats.
3. Pease.	3. Beans.
4. Wheat.	4. Wheat.

From year to year tentative modifications have been made to these two forms of rotation. Thus in 1907 and 1908 Turnips were substituted for the Cereal Ensilage crop in the first series, whilst in the second series Kale was substituted for Mangolds in 1908, and Vetches for Beans in the same year; and in their modified forms these two rotations stand as follows at the beginning of 1909:—

First series.	Second Series.
1. Turnips.	1. Kale.
2. Barley.	2. Oats.
3. Pease.	3. Vetches.
4. Wheat.	4. Wheat.

We offer the following remarks on the various subsidiary crops hitherto tested:—

First Series—Cereal Ensilage Crops.

A cereal ensilage crop, consisting of wheat, oats, and vetches, might in certain circumstances serve very well to replace the root crop of the old Norfolk rotation. It may without disadvantage be made to take the bulk of the farm yard manure available; and the fact that it must be cut relatively early before many weeds will have had time to run to seed, should help to clean the ground for the succeeding crop even more effectively than a horse-hoed crop such as turnips. Nor is there any particular difficulty in sowing such a crop on a wheat stubble, providing the latter be broken up sufficiently early after harvest and well worked down subsequently with roller and cultivators. If slight rains follow the cutting of the ensilage crop, it will give a good aftermath for grazing, particularly so far as the vetches are concerned. Later on in autumn it may be broken up and sown to Barley or Oats. This crop was discarded from our plots because at the time Turnips appeared to us to be on the whole more promising for ordinary mixed farming. We are, however, quite prepared to recommend the use of a Cereal Ensilage crop for opening a rotation terminating in Wheat; although we freely recognise that in present circumstances there would be little advantage in allotting to ensilage one-quarter of the cultivated farm area. It would therefore share this area with some other equally suitable root crop.

Turnips.

Within the last two seasons Turnips have replaced the Cereal Ensilage crop in our experimental plots: we entertained great hopes of Turnips. They practically revolutionised British farming over the course of the last century. They are justly in high favor in New Zealand at the present time, and they were strongly recommended by Professor Lowrie when on a visit to us in 1906. We have, however, reluctantly to recognise that they have not come up to our over sanguine expectations; why this should be so may readily be accounted for. It now appears to us that Turnips and Swedes can be expected to be very remunerative only in those countries in which they are calculated to make good an absence of good natural winter feed, or, in other words, only in those countries in which they can without difficulty be summer-grown, lying dormant through the cold winter months. This fact must restrict the advantages that undoubtedly attach to them to countries with mild moist summers, such as England and New Zealand. It seems to us possible, however, that some future may lie before them in the moister of our southern and south-eastern districts. North of Adelaide, on the other hand, apart perhaps from a few favored localities, the turnip cannot be grown to advantage except it be autumn-sown. Hence it does not come available for feeding until the early spring months, when all natural pastures are usually at their best and Turnips more or less superfluous. Moreover, as a spring-fed crop, Turnips present the great disadvantage of running to seed on the first approach of warm weather, whence much waste results unless they be very rapidly fed down. In the North the Turnip crop must always challenge comparison with Kale, and the latter, in our view, is incomparably superior to it. Well-grown Kale may generally be said to offer in the long-run a greater quantity of foodstuff to the acre ; there is not the same necessity to feed it down early in spring, and as green feed it will continue available incomparably later in the year than Turnips.

We now proceed to summarise available data concerning the two Turnip crops raised in the Permanent Experiment Field in 1907 and 1908 respectively. In 1907 the seed was drilled in at the rate of 3lbs. to the acre, in intimate mixture with ½cwt. of bonedust, on April the 9th ; whilst in 1908 the seed was drilled in at the rate of 1lb. to the acre, mixed with the same quantity of bonedust as in 1907, on June the 7th. We wished to test late-sown Turnips with early-sown ones, and the advantage remained incontestably with the latter. One pound of seed to the acre proved amply sufficient for all purposes. Both crops were fed off with sheep in the field as soon as the roots were sufficiently mature. Details concerning results recorded are shown below.

1907.—Two-acre Turnip plot No. 4 was fed down between August 28th and October 1st for 23 days at the rate of 52·6 sheep to the acre, representing 3·31 sheep to the acre for the year.

1908.—Two-acre Turnip plot No. 3 was fed down between September 28th and October 19th for 22 days at the rate of 47·1 sheep to the acre, representing 2·84 sheep to the acre for the year.

The sheep depastured here were weighed on and off the field, and the figures show that, although they were young and growing sheep, they gained very little weight during these 22 days, in all probability because they were kept on the plot too long. The total increase in weight was represented by

81lbs. per acre for the whole period of 22 days, whilst the average individual daily increase in weight of the sheep was represented by 0·08lbs., which is, of course, exceedingly low.

Whilst we should not, of course, care to advocate the extensive growing of either the Field Turnip or the Swede in this district, we are quite prepared to recommend its trial over small areas on land relatively light in texture.

PEASE.

This is a crop which, so far as the district is concerned, we should wish to be in a position to speak well of. It presents the great advantage of being a rapid growing leguminous crop, and as such well calculated immediately to precede Wheat in regular rotation. As a collector of nitrogen from the air, however, we do not think that it equals Clover or Vetches, or even Horse Beans. Nevertheless, Pease are fairly hardy, and yield a grain that may be marketed locally without difficulty. When grown on the College farm as an ordinary farm crop, field Pease have at times yielded fairly remuneratively. In the plots of the Permanent Experiment Field, on the other hand, we must confess them to have been consistent and unmitigated failures. We append below what have been our results over the past four years.

1905.—We had about eight acres under Pease in the Permanent Experiment Field, which yielded about 12cwts. of Total Produce and 8bush. of Grain to the acre.

1906.—Plot No. 3 was under Pease. In this season the pods were eaten out by caterpillars to such an extent that what was left was not thought to be worth reaping.

1907.—Plot No. 2 was under Pease and yielded 13cwts. 7lbs. Total Produce to the acre, and 5bush. 35lbs. of Grain.

1908.—Plot No. 5 was under Peas this season. In previous years the cost of gathering in and harvesting the Pea crop had, in our opinion, been altogether in excess of the meagre returns secured. We determined, therefore, in the present season not to harvest the crop, but to feed down with sheep whilst the pods were still soft and tender. This we proceeded to do between October 28th and December the 10th with a flock of ram lambs. During this period for 44 days this two-acre plot carried sheep at the rate of 14½ to the acre, which works out at 1¾ sheep for the year.

The total increase in weight per acre gained by the flock during these 44 days was represented by 285lbs., each sheep having put on the substantial increase of 0·45lbs. per diem. It should be noted that the increase in weight gained by the flock in this plot, viz., 285lbs. per acre, is considerably in excess of the increase per acre secured in turnip plot No. 3, viz., 81lbs.

We are not prepared to say that peas are a crop not suited to the district, nor that in general it is more profitable to feed them off in the field than to harvest them by the usual methods. It is quite possible that our want of success in the Permanent Experimental Field may in some measure be attributable to the nature of the soil. Peas as a rule flourish in limestone soils relatively light in texture; whilst the soil in which they have been sown represents a somewhat stiff loam. At best, however, it appears to us that in this district if peas are to be harvested they must be looked upon as a crop the success of which is highly problematic. If one have the good fortune to escape the ravages of caterpillars, one has next to contend with the difficulties of harvesting operations. If, with a view to securing early ripening, Peas be sown early, the delicate flowers have to run the gauntlet of frosts that render abortive any attempts at setting. If sown towards midwinter, the pods ripen too close to general harvesting operations to prove altogether convenient. And, unfortunately, the harvesting of Peas is always a tediously long process, absorbing more than its due of teams and hands that would at the time be more profitably employed in the Wheat and Hay fields. No doubt the pea-harvester attachment to the ordinary mower serves well enough to collect together the pod-bearing haulms. It is later on, however, when the latter have to be conveyed from the field to the threshing-floor, or threshing-machine, that the trouble begins. These haulms are exceedingly light and bulky, and when the winds have not succeeded in blowing them away completely it is very difficult to put anything like an adequate load on dray or wagon, with the result of the loss of much precious time to and fro. Moreover, whenever the pods are dry and the sun normal, every jolt of the wagon, every touch of the fork, is accompanied by the broadcasting of grain. It is of course simple enough to recommend that the haulms be handled only in the early morning, or when the sky is overcast; but with general harvesting operations pressing on all sides, one can ill afford the loss of time that must result from more or less intermittent occupation. No doubt the bulk of the grain that falls to the ground will be picked up later on by depasturing sheep or pigs. The fact remains, however, that but little reaches the barn, which affords the sole means of determining yields.

To our mind, therefore, in a hot dry district the harvesting of a field pea crop is surrounded with difficulties; indeed such as to render altogether questionable its value as an ordinary farm crop. If our ingenious implement-makers could only devise some implement which would in one operation both collect and thresh the pea crop—could construct a pea stripper—they would do much towards popularising this otherwise excellent crop. In the meantime, in the Permanent Experimental Field, we shall continue to watch the pea crop as a crop to be fed directly in the field. In this direction it has over turnips the great advantage of becoming available for grazing considerably later in the season, and of making good second growth on the fall of moderate showers.

The variety of peas used in the experiments above referred to is the one known as the Early Dun pea, and it was sown at the rate of 100lbs. to the acre in the ordinary 8in. drill width. Seeding took place on the 25th and 26th of July in 1905, on the 20th of June in 1906, on the 18th of June in 1907, and on the 2nd of June in 1908.

Barley.

Barley is a crop admirably adapted to local conditions, the value of which does not appear to us to be sufficiently recognised locally—we refer to the six-row varieties, and not to the two-row malting barleys. Oats are as a rule far more popular in the district, although there is no question but that barley is the more reliable crop, particularly in the lighter types of soil. Very particularly is this crop to be recommended on farms that are given to pig-raising, for there is no cheaper pig feed than that yielded by a well-grown crop of Barley. In moderation, too, it may with advantage be fed to working horses. There appears to exist a local prejudice against Barley which interferes perhaps with its popularity. Thus it is stated by some that, even with an intervening year of bare fallow, a heavy Barley crop will have the effect of materially reducing the yield of the wheat crop that follows later on. It is suggested that the Barley crop exhausts the soil for the time being of its normal supplies of available plant food. If this were so there should be no difficulty in remedying it by the judicious use of artificial manures. This explanation does not, however, appear to us in accordance with general experience; for, whilst Barley is so notoriously a surface feeder, the roots of wheat penetrate to great depths. Finally, we may state that neither on the College farm nor in the plots of the Permanent Experimental Field have we ever found a good crop of Barley interfering with the growth and yield of succeeding wheat crops.

1907.—Plot No. 5 was under Barley this season. It was sown somewhat early on the 4th of May, and appeared to us in danger of attaining to undue rankness, and we decided in consequence to feed it off with sheep towards the end of July. Hence from the 24th to the 29th of July this two-acre plot was made to carry 163 ewes and lambs. Unfortunately the months that followed proved most unfavorable to second growth after feeding off so late in the year, and the final yield was very unsatisfactory, viz., 10bush. 29lbs. to the acre.

1908.—Plot No. 4 came under barley in 1908. This crop was sown on June the 2nd, and by comparison with our ordinary farm crops of that year ultimately yielded very poorly. It is not easy to account for this poor return, except perhaps on the score of inadequate tillage. Total Produce per acre was represented by 1 ton 12cwts. 16lbs., and grain per acre by 18bush. 32lbs.

(*To be continued.*)

CONCRETE FENCING-POSTS.

EXPERIMENTS IN NEW SOUTH WALES.

By Geo. L. Sutton, Manager of the Cowra Experiment Farm, in the *Agricultural Gazette of New South Wales* for April.

With the prospect of timber for fencing-posts becoming scarcer each year, and because of some prominence being then given to cement concrete, it was decided some twelve months ago to erect a short experimental line of fencing with concrete posts, so as to determine if there were any special difficulties to be met with in this type of post, and to obtain some definite idea under local conditions as to its cost and efficiency.

The length of line erected is 2½ chains, and included in the line are gate-posts, straining-posts, struts, stays, and ordinary posts.

The location of the fence is such as to ensure that the posts are subjected to a fair trial. It is the boundary line between a lane and the paddock in which the stables and other farm buildings are situated. The gateway is the entrance to this paddock, and is in constant daily use. On one occasion a dray collided with one of the gateposts, but it suffered no appreciable damage. Fig. 1 is an illustration of this kind of fence; its neat appearance commends it.

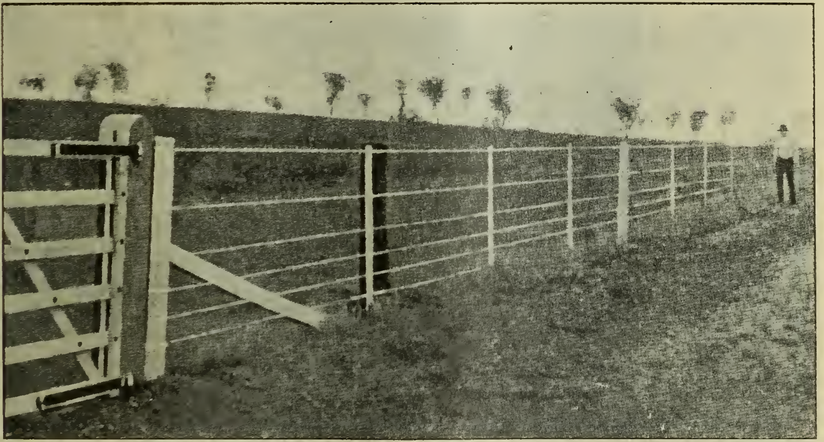


Fig. 1.—Concrete Fencing-posts at Cowra Experiment Farm.

The posts were made of the following mixture:—Cement, 1; sand, 2½; gravel, 5. In the case of the ordinary fencing-posts and struts, the gravel was small, being about ½in. In the larger and bulkier posts the gravel was of a much larger size, some pieces being the size of an egg. The dimensions of the ordinary posts are 6ft. 3in. long by 3¾in. x 3in. at the top, and 5½in. x 5in. at the bottom. Each post is reinforced with four pieces of No. 6 crimped wire placed 1in. from each corner. The crimped wire was used because it was on hand, and was considered to be stronger than the plain, but from what has since been learnt it is believed that the ordinary No. 6 plain wire, bent at the ends, would be quite strong enough for reinforcement.

The wires are fixed to the posts, as shown in fig. 6, by tying wire which passes through holes in the post, and 2in. from its face. These holes were made when the post was moulded, and are made by putting ¼in. iron rods through the sides and across the mould the required distance apart, *i.e.*, the distance necessary for the spacing of the wires. When the concrete sets, the rods are withdrawn, leaving holes in the post. Two of the rods are in the form of bolts, which on being screwed up hold the mould together, and stiffen it, so that the mould will remain firm when the material is tamped.

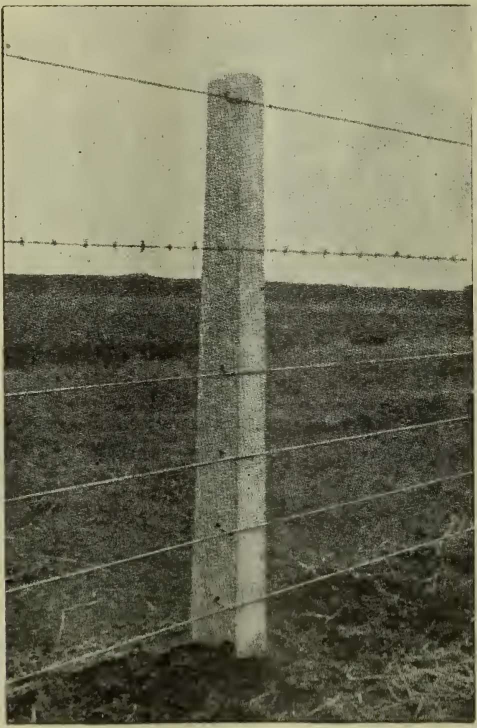


Fig. 2.—Concrete Fencing-posts at Cowra Experiment Farm.

Where only plain wires are used on a fence, they can, if desired, be run through the holes in the post, but because of the ease with which a broken wooden or concrete post can be replaced, and because a much neater and better job can be made when affixing netting, it is believed that the proper method of affixing wires is by means of the tie-wires to the face of the post.

The posts were moulded singly in collapsible moulds. The sides of the moulds were of 1½in. dressed cypress pine, and were kept apart by blocks 2in. thick at each end. The top block had two small three-cornered fillets tacked to it, in order to give a bevel finish to the top of the post. The moulds were held together by three bolts, the top and middle bolts being placed so that the holes, which were left when they were withdrawn, were at the required distance apart to correspond with the spacing required by two of the wires in the fence.

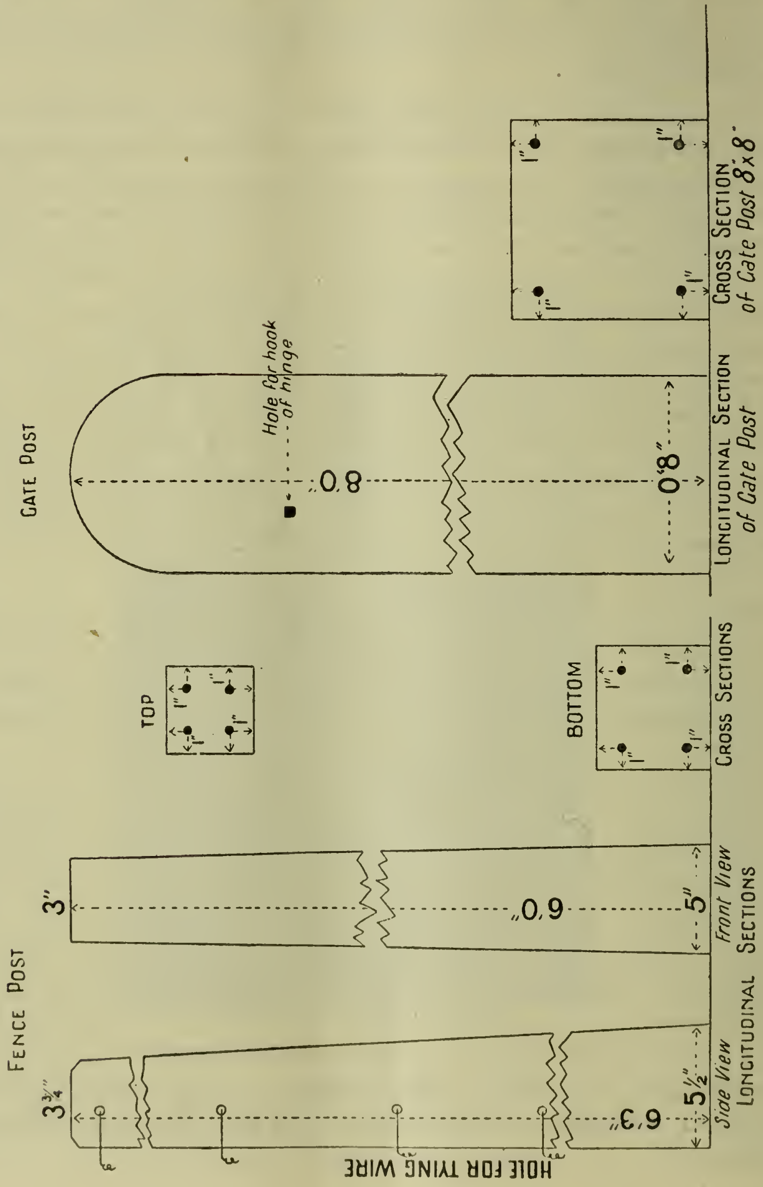
When making the post the mould, after being cleaned and greased, was placed on a board, so that the back of the post would be underneath, and sufficient material in a soft state to cover the bottom about 1in. deep was placed therein. Two of the reinforcing wires were then placed on the concrete, at about 1in. from each side, and extending from within 2in. of one end to the same distance from the other end. The mould was then half filled, and the rods to make the holes for the fencing wires passed through the sides. Material was then placed in the mould to within 1in. of the top, when the remaining two reinforcing wires were put in a similar position to the first two, and the mould filled. After being filled the material was worked to the sides by passing a trowel or spade between the material and side of frame or mould. When this had been done the material was thoroughly tamped with a small rammer. This operation brought the fine material to the top, which, on being smoothed off with a trowel or float, gave a smooth surface to the face of the post.

After the concrete had been allowed to set for two or three hours, the bolts were unscrewed and the mould taken apart, cleaned, and greased for another post. The newly made post was kept in the shade to season for about a fortnight, being watered daily for the first week so as to retard the progress of setting.

No difficulty was experienced in making these posts, nor had those engaged in making them had previous experience with concrete. The information necessary to make them was acquired through reading "Concrete Dwellings and Farm Buildings" (F. G. Chomley), in the *Agricultural Gazette*, April, 1907. From this it is quite evident that, with intelligent direction, the work can be quite easily carried out on a farm with the ordinary labor available.

Information which has been gained since the post were made has given the impression that the material could be used much drier, and though this would require more tamping, it would admit of the moulds being removed sooner from the posts without injury to them. It is also believed that the posts could be moulded on the ground, or on a bed of sand, instead of on boards.

The actual details of making the posts will vary according to the facilities available on different farms. If desired the moulds can be made in sets, and several posts made at a time. Under certain circumstances this plan will perhaps be found the most suitable, but for continuous work it is believed that making a single post in a collapsible mould will be found the better plan. If a single collapsible mould be used, it can be removed much sooner, and with less risk of injury to the post, than if a compound mould be used.



The gate, straining-posts, and struts were made in a similar way to the ordinary posts, in moulds of the proper size. In each case stronger re-inforcing rods of ⅜in. round iron were used. It is believed that the ⅜in. reinforcing rods in the struts or stays could be replaced with ¼in. rods without unduly weakening them.

The holes for the hooks of the hinges were made in the gateposts by placing the hooks or gudgeons to be used in their relative position in the moulds. The tops of the gateposts were rounded by placing a block of wood the required shape at the head of the mould.

The straining-posts are 7ft. 9in. long, with a cross section of 8in. x 6in. At 1ft. 10in. from the top, a slight rectangular recess is moulded obliquely in the centre of one of the narrower sides for the reception of the end of the stay or strut. The straining-posts are placed 3ft. 6in. in the ground.

The stays or struts are 9ft. long, with a cross section of 4in. x 3in.

The appearance of the posts is improved if, after completion, they are given a coat of thin cement wash, made by mixing cement thinly with water.

The cost of fencing-posts made of concrete will depend upon the local cost of the material used. It is estimated that where suitable gravel and sand is easily obtainable concrete fencing-posts can be made for about 1s. each (labor and material). Fencing-posts of the dimensions given require about 18lb. of cement, which at this farm costs about 8d. With sufficient moulds available, it is believed that a man could make about 100 posts per day.

The experience gained with the short line of fence erected at Cowra Experiment Farm shows beyond doubt that concrete is a suitable material for fencing-posts in this climate. Concrete posts do not require specially skilled labor to make, they are neat, efficient, and durable, being unaffected by white ants or rot, and probably also by bush fires. Their first cost, however (about 1s.) makes their use uneconomical in districts where wooden posts are still easily obtainable. Concrete gateposts are a decided advantage over wooden ones. Unsightly cracks do not appear in them, nor do they require painting regularly to keep them neat and in good order.

TURRETFIELD.

ADVISORY BOARD OF AGRICULTURE.

The monthly meeting of the Advisory Board of Agriculture was held on Wednesday, May 12th, there being present :—Messrs. J. W. Sandford (Vice-Chairman), J. Miller, C. Willcox, C. J. Valentine, A. Molineux, C. J. Tuckwell, Colonel Rowell, Professor Perkins, and George Jeffrey.

The Hon. Minister intimated that he approved of experiments being carried out next spring in the destruction of locusts in the North.

The Secretary said the report of Professor McAlpine, of Victoria, on alleged smut-resisting wheats was not of a favorable nature. The wheats referred to appeared to escape injury under favorable conditions, owing to the fact that they germinated very quickly, but they did not appear to possess any hereditary quality of resisting smut or bunt.

The Committee appointed to report on the resolutions from Northern and South-Eastern Conferences submitted the following recommendations :—

Veterinary Surgeon for the North.

" The resolution from the Caltowie Conference, asking that a Veterinary Surgeon should be appointed for the North, was carefully discussed, but the Committee felt that it could not recommend the request because—

(1) There are many other districts with equal claims for a veterinary.

(2) The Committee considered that if sufficient inducement were given by farmers and others interested, by guaranteeing a minimum salary in certain districts, a competent veterinary could be induced to settle.

" Further, the Committee is of opinion that if the Government afforded protection to veterinaries and to the public by introducing legislation to prevent any but qualified men practising as veterinaries, no difficulty would be experienced in securing the services of qualified men.

" The Committee is also of opinion that it would be to the best interest of the stock industry if the Stock Department and the Veterinary Department were under one control."

Agricultural Instructor for the South-East.

" The resolution from the Mount Gambier Conference, asking for the appointment of an Agricultural Instructor for the South-East, was discussed at some length.

" The Committee strongly recommends that the Board support this request, and further suggests that the officer stationed in the South-East should have control of all experimental work in the South-East.

" In making this recommendation, the Committee wishes to point out that the general climatic and soil conditions are totally distinct from that of any other part of the State, and this, together with the wide range of products of the South-East, warrants the appointment of a special officer who should devote his time to a study of the problems peculiar to this district. The Committee believes that if a suitable man be secured the outlay would be returned many times to the State."

Some discussion took place in reference to the effect of recommendation *re* protection for veterinary surgeons. Members were of opinion that no action should be taken to prevent practical men treating stock for farmers and others, provided they did not represent themselves to be veterinaries. There were many simple ailments that could be treated and operations performed by such men, and, especially in view of the scattered population in many districts, it would be a hardship to prevent them doing so. It was decided that the recommendation be held over, and that the Secretary ascertain what had been done in Victoria.

Most of the members spoke in support of the recommendation to appoint an Agricultural Instructor for the South-East, and a motion to this effect was carried unanimously. Members considered that with the extreme variations from very rich to very poor land, and the difference between the climate of the South-East and the rest of the State, a man would be required to devote his whole time to a study of the requirements of the district.

Mr. Tuckwell moved that the Board recommend that the Hon. Minister appoint a representative of the South-East to the Board. Members pointed out that they had been appointed to represent special industries and not districts, and that to ask the Minister to appoint a representative of any one district would lead to trouble. The motion was allowed to lapse.

Mr. Tuckwell tabled sample of "paddy-melon," about 5in. in diameter. He called attention to the fact that, while one man in the North said this plant caused the death of cows, another reported that his cows, when they became accustomed to its bitterness, did well on the melon. He had known pigs to be fed on the melons without injury. Members were of opinion that the sample was allied to the ordinary pie-melon. The true "paddy-melon" was the small prickly-fruited variety, and this was reputed to cause blindness in stock. It was decided that the Secretary endeavor to secure plants next season when in flower, in order to have it properly identified.

The following gentlemen were approved as members of the undermentioned Branches:—Messrs. F. and H. Heinjus, Brinkworth; H. Nieksch, R. H. and F. C. Stringer, D. H. Nock, H. Burnett, P. T. Goldsworthy, A. Osborn, Sherlock; H. J. Morrison and G. H. Easter, Butler; D. McArthur, Bute; R. and C. East, H. Moody, and E. Pitt, Mallala; W. Champion Mills, Kanmantoo; J. E. Wood and C. Walsh, Yallunda; E. Bigg, Willunga; C. R. Irvine, Clare; H. Davies and S. Smart, Dawson; A. S. R. Lovell and J. B. Oats, Penong; J. B. Mattner, Quorn; S. P. Howell, Miltalie; B. and C. Havelberg, Shannon.

POULTRY NOTES.

By D. F. Laurie.

The Egg Market.

During April and part of May prices ruled high in the Adelaide egg market. The season was peculiar, and many pullets did not come into laying as early as was expected by the breeders. Moulting was also irregular, and in numerous cases a second partial moult took place. April was very cold, in sharp contrast with the genial weather experienced during April, 1908. These causes, no doubt, helped to keep up the price, which at times was, however, out of proportion to the markets in the other States. Last spring many dealers preferred to pickle their eggs in preference to supporting the export trade to England. It was pointed out at the time that probably some fingers would be scorched, and it is probable that this has happened. At any rate, just as the big fall in prices occurred a great many pickled eggs were offering without finding a satisfactory outlet. It is very probable that a heavy loss has occurred, as many of those eggs went into pickle when the local market was from 8d. to 9d. Had these eggs been shipped to England the net return would have been 10d., or even 11d. Prices are now lower than they were at this time last year, and unless extraordinary weather conditions are met with in June and July, we shall see cheap eggs in August and September. The oversea shipment of eggs will be vigorously prosecuted this year, and I hope all farmers and poultry breeders will heartily co-operate to develop the English egg trade. I think finality has been reached in the matter of packing, and that we can land our eggs practically free of breakages. The adoption of wood-wool as a packing agent will prevent any mishap due to musty or damp chaff. The year's experience with cold storing of eggs at the Depot is convincing proof that our eggs are eminently suited for long voyages, and we have the knowledge that the shipping companies will do their part to ensure safe delivery in good order. Again I would urge the marketing of infertile eggs. I have in my office a number of eggs which I have been observing during a long period in cool stores. There were two classes—infertile from Roseworthy Poultry Station, and ordinary commercial eggs obtained from a collector. Of the latter, after six months' storage one was bad, and some of the others watery; the sample as a whole, however, was excellent, and a long way in advance of any cold-stored eggs I have seen after under-going the same period of storing. The infertile eggs were splendid, and with two or three exceptions quite equal to any egg laid a week. The difference in appearance was most convincing proof of the correctness of my contention in favor of the infertile egg.

Table Poultry.

To those who have endeavored to promote the export of table poultry, the excellent prices realised by the second shipment, ex *Wakool*, are most gratifying. At 11d. a pound there is a splendid profit, but, of course, that high price is not always to be expected. At 9d. a pound 4lb. chickens will net 4s. 8d. a pair, which is better than the local price by a long way. I have met many farmers recently who have been selling good export chickens at from 1s. to 1s. 4d. each—most of them at the lower price. During the year I hope to get in touch with poultry breeders throughout the State, so as to induce a number of them to ship at least a portion of their surplus. The recent appointment of Mr. J. Hart as poultry dresser and grader will enable me to give more attention to the development of the table poultry section of the industry. Mr. Hart will visit many country shows, taking with him a Government exhibit. He will also give demonstrations in dressing poultry for export and for cooking.

Breeds of Poultry.

For Egg-production.—It often occurs in discussing papers read at Bureau branches, on the subject of poultry, someone, sometimes many, will declare strongly in favor of a cross for laying. Now the fact is that the purebred is the layer, and not the crossbred. In the first instance, one must procure specimens of a laying strain and breed them pure, taking great care in the selection of breeding stock each year. Where the strain is pure, and of good constitution, the careful breeder can improve the laying powers of successive generations of pullets by carefully testing selected pullets before breeding from them, and also by refraining from the introduction of fresh blood. By adopting proper methods of breeding you can accentuate desirable points, but by crossing, and the frequent introduction of fresh blood, you introduce warring elements, and never know what to expect. Among the White Leghorns we find the most carefully selected laying strains. In this State breeders have not paid the same attention to developing the laying powers of the different varieties of Leghorns. At Roseworthy I stock only the White Leghorn, as I am quite satisfied with them, and have neither time nor inclination to take up other Leghorns. Black Minorcas are great favorites, but at present their laying is not altogether satisfactory. However, several breeders have them on hand, and we may hope to see good results in a year or two. At the Roseworthy Poultry Station I have some on trial, and although they lay well, there is room for improvement. I look upon Leghorns, Minorcas, Andalusians, and Anconas as egg-producers only, for their flesh is of poor quality, and they are only fit for table purposes as squabs or spatchcocks—when from 1lb. to 2lbs. weight.

For all-round purposes, that is, where a good supply of eggs is looked for, and at the same time a breed that will produce a table bird of good quality, I should advise the Orpington, Wyandotte, and American Barred Plymouth Rock. I do not advise mongrelising any breed for the mere sake of eggs. Some breeders have mongrelised their Orpington stock by the introduction of foreign blood. This has resulted in more eggs, but also in a loss of type and purity. In time these will degenerate into worse mongrels than they already are. Typical representatives of these three breeds may be relied upon to give a good return in eggs, while the chickens, if well grown and fattened, make splendid export chickens. The Black Orpington is the better layer of the two, but the Buff excels as a table bird, especially for the London market. The White Orpington has yet to make its name, while the Jubilee and Spangled varieties are scarce, and not very attractive. In Wyandottes we find the Silver breed occupying the most prominent position, for the good reason that breeders have developed its laying powers, and have selected for improvement in size of eggs. Still, there are excellent layers among the other varieties—all of which make very fine table birds, well suited for export. As a rule these birds do not fly so much as Leghorns and Minorcas, and are therefore preferred by many who do not provide adequate yard accommodation.

Table Birds Only.—The average farmer has not time to go into the breeding of the very highest class of table poultry, and therefore I recommend him to choose from the foregoing breeds and do his best. The Game crosses give a remarkably fine breast development, but where the Indian Game is used as a cross I find people insist on keeping the handsome pullets, which are useless as layers or breeders. The Old English Game is a good layer, and the same trouble does not occur ; but while I recommend crossing with Game to give the good breast development, I do not wish any but breeders who will sell all the crossbreds as table birds to enter into this branch. Dorkings have proved somewhat unsatisfatcory of late years, but should do well in the South. Of other pure breeds there is only one which will give a table bird of the first quality and of large size, and that is the Faverolles (named after Faverolles, in France). This is a feather-legged bird (but better without), of beautiful white flesh, a quick grower, very easy to fatten, lays fine eggs, and in fair quantity, and not prone to sit. It does not pay to breed pure Indian Game for the table, as the hens are very poor layers. Old English Game give the highest quality of flesh, but are much smaller than the breeds I have recommended.

Poultry Stations.

Of the six small demonstration stations started some four years ago, only those at Goolwa and Orroroo remain. At Goolwa the small station is under the superintendence of Miss B. L. Sunman, who has been a strong supporter of the export trade in eggs and poultry. For two years White Leghorns were tested and figures obtained for the period. Later on Black Orpingtons were tried, and have done excellently. For some unknown reason the South is not alive to the value of the poultry industry, and yet the whole of it is well suited for poultry-breeding.

In the North the value of the little station at Orroroo has been very great. Before it was started there were only a few fowls about the district, and mongrels at that. Now, however, there are hundreds of purebred, good-laying fowls on the farms in the district. Mr. C. Hagger—a great enthusiast—looks after the fowls, and, like Miss Sunman, at Goolwa, keeps various breeds on his own account. White Leghorns were tried here for three seasons, and now a change is to be made with Black Orpingtons, which thrive well up there.

A small poultry plant was erected at Kybybolite last September and stocked with pens of White Leghorns, Old English Game, and a pen of Indian Game crosses. The birds have done very well; the egg-production has been satisfactory; and a nice draft of prime crossbred table birds went to England with the last shipment. Eggs are available from the pens, and the farmers are taking due advantage of that fact. This station should serve a big district, populated with numerous settlers on the repurchased estates.

The principal station is at the Roseworthy Agricultural College, and it is there that the big laying competition is conducted. There are 113 pens, numbering 678 pullets. In addition there are 12 pens, each containing six pullets and a cockerel, constituting a series of food tests which should afford valuable data for our breeders. There is also a pen of six pullets—White Leghorns bred on the station. They are doing well.

In the food tests White Leghorns, Black Orpingtons, and Silver Wyandottes are being used. They were obtained from Mrs. Kinnear, Mr. F. J. Wimble, and Messrs. Kappler Bros., who are represented in the laying competition by pens of these breeds and of similar parentage. The results will be useful for comparison with the competition pens; but, in addition to having a male bird in each pen, the feeding is varied. Each test includes a pen of each breed.

No. I. Test.—Birds fed same as competition pens.

No. II. Test.—Birds fed same as competition pens, but with double the amount of the meat meal.

No. III. Test.—Birds fed on dry mash in the morning instead of the ordinary wet mash. Bran and pollard in a dry state is placed in a food dish. It takes the birds a long time to make a meal of this. The method has many advocates in America and England. Meat meal is given separately, and green food; grain at night.

No. IV. Test.—No mash; grain only. Green food daily, and meat meal as usual.

Meat Meal.—Government manufacture, "P E D" brand, is used for all birds on the station.

PRODUCE EXPORT NOTES.

Extracts from the Commercial Agent's Report.

LONDON, April 2nd, 1909.

Apples.

The *Mooltan* delivered the first of this season's Australian apples in London at the end of last week, and they reached the market on Monday, March 29th. Owing to the favorable reports that had been made as to the prospects for good prices during the coming season, considerable anxiety was felt as to what price would be realised at the opening sales. The fruit generally opened up in fairly good condition, although occasional cases contained fruit which was slightly shrivelled. This being a sign that the bulk might be similarly affected, and with the limited opportunity there is of seeing the fruit at the auction sales at Covent Garden, I noticed that buyers were bidding very cautiously, and therefore when the sample case opened before them was not absolutely perfect, that particular grower's brand suffered in price accordingly. To a certain extent buyers are buying a "pig in a poke," as the Floral Hall at Covent Garden does not lend itself to a proper display of a shipment for the benefit of those wishing to make purchases. The best prices made during the sales were 15s. a case for a few very good cases of Cox's Orange Pippins and Cleos. The average price for Cleos and Jonathans that were in condition can be taken at 12s. 6d. a case, with a variation of from 11s. to 14s. 6d. a case. Other varieties occasionally reached these prices, the best being Munroes. Fruit off in condition was sold down to as low as 7s. 6d. a case. The general impression is that sales were affected by the desire of holders of American apples to clear off what remained of their season's stocks, and as these are reported to be nearly cleared and are being rushed on the market, the tendency will be for firm markets for our larger shipments.

National Engineering and General Trades Exhibition.

Our exhibit at the above exhibition at Birmingham consists entirely of honey, with which a variation will be made so soon as the dried fruit exhibit comes to hand. The method adopted in this respect is an excellent one for advertising the State's produce generally. When the Commercial Agent decides to make an exhibit at a show, he also takes steps to interest some firm in that locality or town to stock supplies of the goods he is exhibiting ;

the result is that those seeing the exhibit and having a fancy for the produce are directed to a local house where they can purchase the article. This has a double effect. As an instance, at the present time we were able to open our first honey business in Birmingham, because the fact that we were advertising the goods at the show was an inducement with the firm we made arrangements with to stock our honey.

The result is that through the advertisement we were able to give inducement to a trader to stock our goods. The honey sold constantly keeps before the public the facts aimed at by making such exhibitions, and generally there grows up the feeling that South Australian produce is desirable. This method of fostering trade incurs some little expense to the State, but I feel sure that the end obtained justifies the cost, and is one of the very best methods of forwarding the policy of the Government as regards the State's products.

HULL.

As evidence that Australian shippers should turn their attention to distributing produce outside of London, I would draw attention to the fact that Hull fruit merchants purchased nearly 2,000 of the 7,000 cases out of the first fruit shipment from Australia this year, which arrived last week. The point is that when they have to come to London to buy, and then cart back to Hull all their purchases by rail, producers cannot expect to get the advantages they should do by this trade, therefore it would be advantageous to land the fruit at their docks, thus saving the intermediate carriage.

THE WHEAT MARKET.

The past month, unlike its predecessor, has been uneventful, and the price for farmers' lots of f.a.q. wheat on trucks at Port Adelaide has remained unchanged at 4s. 11d. since May 7th. There does not appear to be much reason why it should change, for it is based on Australian requirements, which are known, and is not governed by the English market, where the question of the adequacy of the supply is so problematical. The difference between London and Port Adelaide is at present about 7d. per bushel — a margin which does not satisfy the expense of freight, handling, and merchants' profits. Evidence was given before the Wheat Commission that parity between Adelaide and London prices is obtained when there is a difference of 9d. showing to cover expenses. Freights during the month have ruled at from 4d. to 4½d. per bushel for steamer parcels to the United Kingdom.

The cablegrams from the Commercial Agent, which are tabulated on the next page, show that the market is still strong in England and that there was some justification for last month's fears of a short world's supply; for, notwithstanding the collapse at Chicago, the price has to a great extent recovered and been maintained. Broomhall, writing on April 20th, said—With the exception of the Leiter year (1898) wheat was dearer than it had been for 25 years. In 1873, 1874, and 1877 wheat was worth over 65s. per quarter, and in May, 1898, it was 56s. Now the finest qualities of Australian and Canadian wheat are quoted at 44s. to 45s. per quarter. In October, 1894, prime quality wheat was pressed for sale at less than 20s. a quarter.

The majority of South Australian farmers have very little interest in the wheat market at present, as they sold early. They are more concerned with the crop they have just sown, and they are wondering whether the Argentine will flood the market with wheat at the time when the Australian harvest is being shipped. On this aspect of the situation the following summary of a telegram published in Broomhall's *Corn Trade News* of April 6th is of interest :—" Argentina.—Owing to drought new lands cannot be broken, and now too late for wheat, indicating no increase of acreage." Ten days later there were reports of good rains, beneficial for ploughing, but it is not stated that any new land will be brought into cultivation. The chances are, therefore, that the Argentine export will not greatly exceed last year's. In other directions there is reason for expecting, even at this distance of time, another year of high prices. Beerbohm, writing on April 23rd, said :—" It must not be forgotten that the season is likely to end with a world-wide exhaustion of reserve stocks, and it will require a repetition of the abundance of 1906—when the world produced 432,000,000 quarters—to effect anything like a radical change in the level of prices. So far, there are no sure signs of abundance in 1909-10 ; on the contrary, we see a poor outlook in Germany, Hungary, and Austria, and a doubtful one in respect to the winter wheat crop in America."

Date		LONDON PRICE (Previous Day). Per Bushel.	PORT ADELAIDE Per Bushel. Farmers' lots on trucks	MELBOURNE. Per Bushel.	SYDNEY. Per Bushel.
May	8	Liverpool 5/5¼	4/11	5/3	—
	10	—	4/11	5/1½ to 5/2	5/5 parcels (s.)
	11	Liverpool 4/6 afloat (s.)	4/11	5/1	5/4½ nominal
	12	Liverpool 5/5¼ afloat (s.)	4/11	5/1½ (s.)	5/4½ (s.)
	13	Steady; quiet	4/11	5/- to 5/1	5/4½
	14	Very dull; 5/4½	4/11	5/- nominal	No buyers
	15	Firmer	4/11	5/1	5/4½
	17	—	4/11	5/1	5/4½ parcels (s.)
	18	Steady; quiet	4/11	5/1 parcels	5/4½ parcels (s.)
	19	January 5/6	4/11	5/1 to 5/1½	5/4½ parcels (s.)
	20	February 5/6	4/11	5/1	5/4½
	21	February 5/5⅝	4/11	5/1 to 5/1½	5/6 (s.)
	22	May 5/5½	4/11	5/1 to 5/1½	5/5½ to 5/6 (s.)
	24	—	4/11	5/1 to 5/1½	No buyers
	25	Firm	4/11	5/1	—
	26	Quiet	4/11	5/1	5/4½ to 5/5 (s.)
	27	Dull; Liverpool 5/6 April	4/11	5/1	5/5 parcels (s.)
	28		4/11	5/1	—
	29	Very weak	4/11	—	—
	31		4/11	5/0½ to 5/1	5/3½ (b.)
June	1	—	4/11	5/–	5/4½ (s.)
	2	Quiet	4/11	5/– to 5/0½	5/4½ parcels (s.)
	3	Firmer	4/11	—	—

Steamer Freights.—Port Adelaide to London, 12/6 per ton to 13/9 per ton (4d. to 4½d. per bush.). Port Adelaide to South Africa, 15/– per ton (4⅘d. per bush.). Port Adelaide to Melbourne, 8/– per ton (2½d. per bush.). Port Adelaide to Sydney, 10/6 per ton (3¼d. per bush.). No sailer trade.

RAINFALL TABLE.

The following table shows the rainfall for May, 1909, at the undermentioned stations, also the average total rainfall for the first five months in the year, and the total for the five months of 1908 and 1909 respectively:—

Station.	For May, 1909.	Av'ge. to end May.	To end May, 1909.	To end May, 1908.	Station.	For May, 1909.	Av'ge. to end May.	To end May, 1909.	To end May. 1908.
Adelaide	3·91	7·12	8·79	8·00	Hamley Brdg.	2·26	5·55	5·63	5·15
Hawker	1·77	3·94	3·62	3·73	Kapunda....	4·10	6·55	8·89	5·85
Cradock	1·88	3·70	3·19	3·37	Freeling.....	2·87	5·66	6·53	6·14
Wilson......	1·93	3·90	3·57	4·58	Stockwell ...	3·08	6·10	6·66	6·51
Gordon	2·80	6·29	3·89	4·63	Nuriootpa ..	3·39	6·42	7·17	6·86
Quorn	3·23	4·44	4·63	4·60	Angaston ...	4·32	6·37	9·51	7·27
Pt. Augusta .	2·82	3·77	4·32	4·15	Tanunda ...	5·06	6·89	10·35	6·69
Pt. Germein .	2·31	4·77	5·19	6·85	Lyndoch ...	5·05	6·44	9·92	7·56
Port Pirie ...	2·37	4·79	4·03	5·78	Mallala	2·48	5·67	5·82	6·61
Crystal Brook	2·11	5·04	5·30	7·07	Roseworthy .	3·59	5·53	7·73	5·46
Pt. Broughton	2·38	4·81	5·22	5·11	Gawler......	4·04	6·44	8·79	7·08
Bute	1·76	4·90	5·07	6·35	Smithfield ..	3·05	5·20	7·24	7·24
Hammond ..	2·83	3·84	4·36	7·97	Two Wells...	2·04	5·69	5·20	5·69
Bruce	2·71	2·81	3·23	5·88	Virginia.....	2·62	5·96	6·89	6·77
Wilmington .	4·05	5·90	6·31	7·03	Salisbury....	3·71	6·31	7·84	6·55
Melrose	7·42	7·57	10·41	9·73	Teatree Gully	6·87	8·82	14·27	11·24
Booleroo Cntr.	4·38	5·02	6·09	6·43	Magill	5·40	8·47	12·48	9·41
Wirrabara...	4·85	5·94	8·08	7·95	Mitcham ...	4·07	7·53	9·51	7·24
Appila	2·67	4·99	5·47	6·50	Crafers	8·77	13·28	21·46	14·77
Laura	4·43	5·54	8·11	8·58	Clarendon ..	5·75	10·63	14·61	10·45
Caltowie	2·74	5·42	5·27	7·37	Morphett Vale	3·60	7·70	10·07	6·09
Jamestown .	2·66	5·30	4·79	5·66	Noarlunga...	3·27	6·65	8·01	6·64
Gladstone ..	2·54	5 00	4·92	6·99	Willunga ...	5·01	8·28	11·61	7·77
Georgetown .	2·57	6·06	5·18	6·32	Aldinga	4·12	6·48	8·69	6·39
Narridy	1·85	5·67	3·89	5·98	Normanville.	4·57	6·67	8·94	6·09
Redhill	2·39	5·32	5·18	6·98	Yankalilla...	4·71	7·37	8·85	7·31
Koolunga ...	2·04	5·02	4·26	6·59	Eudunda....	2·64	5·28	5·15	5·13
Carrieton....	2·83	3·90	3·95	4·41	Sutherlands .	1·03	—	1·88	—
Eurelia	2 60	4·30	3·65	6·94	Truro.......	3·58	5·84	7·41	6·23
Johnsburg ..	2·62	3·15	3·50	3·56	Palmer	2·57	—	5·87	5·46
Orroroo	2·46	4·77	3·55	5·06	Mt. Pleasant .	4·35	7·92	9·91	8·89
Black Rock..	3·09	4·26	4·03	4·49	Blumberg ...	5·02	8·38	12·02	10·45
Petersburg ..	2·42	4·41	4·06	4·44	Gumeracha..	6·94	9·71	16·14	12·25
Yongala	2·31	4·38	3·61	3·88	Lobethal ...	6·29	9·67	16·10	11·08
Terowie	2·34	4·30	3·80	4·46	Woodside ...	5·96	8·53	14·32	10·98
Yarcowie....	2·18	4·41	3·81	4·02	Hahndorf ...	6·24	9·63	13·53	11·55
Hallett	2·42	4·98	4·23	5·29	Nairne	5·14	8·51	13·27	9·75
Mt. Bryan...	2·49	4·43	3·95	4·63	Mt. Barker ..	5·65	9·27	13·83	9·45
Burra.......	2·75	5·62	6·09	5·24	Echunga ...	6·39	9·69	15·01	11·04
Snowtown...	2·50	5·11	5·83	7·24	Macclesfield .	5·61	8·53	14·58	11·15
Brinkworth..	1·93	4·54	3·75	6·93	Meadows ...	5·90	10·44	16·58	11·50
Blyth.......	2·61	5·52	5·74	6·49	Strathalbyn .	4·60	6·16	9·87	7·36
Clare	4·36	7·72	8·24	8·95	Callington ..	2·89	5·27	6·30	5·49
Mintaro Cntrl.	4·41	6·37	7·87	6·74	Langhorne's B	2·98	4·96	6·22	4·77
Watervale...	4·64	8·54	10·01	9·80	Milang	3·22	5·68	6·67	7·30
Auburn	4·72	7·82	10·24	7·85	Wallaroo ...	2·15	5·05	5·42	6·12
Manoora	3·24	5·71	5·02	5·67	Kadina	2·21	5·62	5·70	5·37
Hoyleton....	2·16	6·28	5·13	6·16	Moonta	1·91	5·47	6·58	5·43
Balaklava ..	2·24	5·73	4·81	6·27	Green's Plains	2·96	4·93	6·35	7·55
Pt.Wakefield	1·77	5·16	3·47	7·17	Maitland ...	2·43	6·56	6·66	6·36
Saddleworth.	2·77	6·75	5·45	6·15	Ardrossan ..	2·16	4·62	4·40	5·77
Marrabel ...	3·48	6·14	7·13	5·65	Pt. Victoria..	1·23	5·25	4·39	5·90
Riverton ...	3·47	6·70	7·91	5·84	Curramulka .	2·50	5·67	6·03	5·51
Tarlee	2·53	5·89	6·31	5·22	Minlaton ...	2·06	5·43	5·21	4·58
Stockport ...	2·14	5·30	4·78	4·35	Stansbury ..	3·53	5·40	6·57	5·55

RAINFALL TABLE—*continued.*

Station.	For May, 1909.	Av'ge. to end May.	To end May, 1909.	To end May, 1908.	Station.	For May, 1909	Av'ge. to end May.	To end May, 1909.	To end May, 1908.
Warooka ...	1·38	5·40	4·96	5·13	Bordertown .	2·93	6·03	6·86	5·38
Yorketown .	1·49	5·46	4·99	3·88	Wolseley ...	3·05	5·42	6·80	5·19
Edithburgh..	2·10	5·54	6·60	4·92	Frances	2·99	5·79	6·79	5·61
Fowler's Bay.	1·85	4·28	3·88	4·58	Naracoorte .	3·53	6·65	8·37	6·43
Streaky Bay.	1·20	4·79	4·19	5·71	Lucindale ...	3·79	6·65	8·83	6·61
Pt. Elliston..	1·92	4·60	5·06	5·31	Penola	3·24	8·16	9·24	6·99
Pt. Lincoln .	1·43	6·15	5·63	4·86	Millicent	7·01	9·07	14·27	8·50
Cowell	—	4·47	2·09	7·90	Mt. Gambier.	6·57	10·02	15·49	9·34
Queenscliffe..	2·45	5·85	5·75	5·16	Wellington ..	2·95	5·25	6·78	5·63
Port Elliot ..	3·16	6·85	7·10	6·04	Murray Bridge	3·91	4·86	7·16	4·84
Goolwa	3·94	6·02	8·74	5·82	Mannum ...	2·14	4·34	4·74	3·88
Meningie ...	3·55	6·14	8·48	5·53	Morgan	1·00	3·33	2·10	2·55
Kingston....	5·15	7·48	10·74	11·37	O'rland Corner	1·54	4·17	2·65	3·04
Robe	5·40	7·47	10·45	6·18	Renmark....	2·19	3·60	3·66	2·08
Beachport...	7·53	8·16	14·45	7·38	Lameroo ...	2·18	—	5·74	—
Coonalpyn ..	4·57	5·35	9·13	5·54					

DAIRY AND FARM PRODUCE MARKETS.

Messrs. A. W. Sandford & Co. report, on June 1st, 1909 :—

From an agriculturist's standpoint the winter so far has been an exceptionally favorable one, excellent rains having fallen during May, and as these were nicely sandwiched with genial bright sunshine, supplies of feed are assured.

General trade remained steady, and good distributing orders were received ; large buying, however, continues conspicuous by its absence, but the settlement of the labor difficulties at Port Pirie and Broken Hill will undoubtedly tend to improve business at these important buying centres.

Fodders.—Shipments of chaff to Sydney tapered off as a result of the lower rates offering from Victoria, whilst farmers here were not disposed to sell their hay too freely. The local call for chaff was, however, quite up to average. Mill offal, owing chiefly to large offerings from the Eastern States, declined in value, but the demand continued steady. In feeding grains good business was put through, the consumption in oats being fairly heavy.

Potatoes and Onions.—The potato trade was somewhat disturbed, on account of the heavy rains in the wet situations in the hills compelling growers to dig and market earlier than usual, they fearing the keeping properties of the tubers ; but there are now signs of these becoming exhausted, when business should resume its normal position. Meanwhile Gambier growers are not too anxious to sell at present quotations, although values in Victoria have throughout had a persistent downward tendency. Onions had only a limited inquiry, there still being parcels available from the hills, whilst Gambier stocks have not reduced to any appreciable extent.

Dairy Produce.—The May markets were exceedingly animated ; this the result of the shortages in fresh print butters, for South Australia has yet considerable leeway to make up in supplies before quantities will in any way fill this State's own needs. However, under the more favorable conditions, we are hopeful that we will shortly have a substantial improvement in that direction. The trade, recognising the lessened output, attended the auctions in large numbers, and lively sales were experienced, quotations keeping well up for all grades of prints. Consignments of prime New South Wales and Victorian bulk butters forwarded to fill the extras found ready quittance. Eggs.—It was not at all surprising, with such genial weather on, to find a rapid increase in quantities, and, as other markets were weak, rates here in sympathy slumped about 5d. per dozen. Cheese factories had a good month's business, the turnover being heavy; consequently prices well sustained. Bacon curers had rather a quiet time, local inquiry easing off, and only very limited orders for shipment were received. Honey.—Buyers had a difficulty in getting sufficient supplies of well-flavored clear extracted, and such was quickly disposed of, but medium grades dragged. Almonds.—Extensive sales put through, some heavy operations for inter-State markets taking place, so that stocks are light.

CARCASS MEAT.—The high rates ruling for beef and mutton caused the butchering trade to operate very freely at the Friday's markets for prime shop porkers weighing 60lbs. to 90lbs. and nice baconers from 115lbs. to 135lbs., and for all such tall figures were secured. Good choppers sold well, but medium stuff quitted just according to the quality. In veal there is an excellent call for prime, farm-fed, with pelt on, but without head, feet, and pluck; but light and poorly-fed are hard to place.

DRESSED POULTRY attracted good competition for all lots of prime birds.

LIVE POULTRY.—Brisk sales ruled for choice conditioned table sorts, which obtained full rates; but the usual difficulty was experienced with half-fed and weedy birds, which invariably are a source of trouble in finding a market.

MARKET QUOTATIONS ON JUNE 1.

FLOUR.—City brands, £11 15s.; country, £11 10s. per ton of 2,000lbs.

BRAN.—1s. 1d.; POLLARD, 1s. 2d. per bushel of 20lbs.

OATS.—Local Algerians, 2s. per bushel of 40lbs.

BARLEY.—Cape, for feed, 2s. 6d. per bushel of 50lbs.

CHAFF.—£4 2s. 6d. to £4 5s. f.o.b. Port Adelaide, per ton of 2,240lbs.

POTATOES.—Locals, £4 to £6; Gambiers, £4 5s. to £4 10s. per ton of 2,240lbs.

ONIONS.—Locals, £7; Gambiers, £7 to £7 10s. per ton of 2,240lbs.

BUTTER.—Factory and creamery, fresh in prints, 1s. 2½d. to 1s. 4d.; choice separators and dairies, 1s. 2d. to 1s. 3d.; medium creamery and ordinary dairies, 1s. to 1s. 1d.; stores and collectors, 10½d. to 11d. per lb.

CHEESE.—Factory makes, 7¼d. to 8½d. per lb. for large to loaf.

BACON.—Factory-cured sides, 8½d. to 8¾d. per lb.

HAMS.—9d. per lb.

EGGS.—Loose, 1s. 2d. per dozen.

LARD.—Skins, 7½d.; bulk, 7d. per lb.

HONEY.—Prime clear extracted, 2¾d. per lb.; dark and ill-flavored, 1½d. to 2d.;

BEESWAX, 1s. 1d. per lb.

ALMONDS.—Softshells, Brandis, 6¼d.; mixed softshells, 5½d.; kernels, 1s. per lb.

CARCASS MEAT.—Bright, handy shop porkers and prime baconers, 5¼d. to 6d.; heavy weights, 3½d. to 4d.; choice farm veal, 3d. to 3½d.; medium quality, 2¼d. to 2¾d. per lb.

DRESSED POULTRY.—Turkeys worth 7d. to 8d.; fowls 5d. to 6d. per lb.

LIVE POULTRY.—Good table roosters, 2s. to 2s. 6d. each; light cockerels, 1s. 3d. to 1s. 9d.; good hens, 1s. to 1s. 4d.; ducks, 1s. 9d. to 2s. 6d.; geese, 3s. 3d. to 4s.; pigeons, 5d.; turkeys, 5¾d. to 8d. per lb., live weight, for medium to good table birds.

AGRICULTURAL BUREAU REPORTS.

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* No report received during the month of May.

† Only formal business transacted at the last meeting.

REPORTS OF MEETINGS.

Edited by W. L. Summers.

UPPER-NORTH DISTRICT.

(PETERSBURG AND NORTHWARD.)

Amyton, May 4th.

(Average annual rainfall, 11½in.)

Present—Messrs. O'Donoghue (chair), Griffin, Ward, T. and W. Gum, Bristow, Brown, Stokes, Crisp, Thomas (Hon. Sec.), and three visitors.

Harvester *v.* Stripper.—At the previous meeting a paper was read by Mr. Crisp on the relative merits of these implements in this district: In good seasons, such as the last three had proved, the harvester was perhaps the better implement of the two, but it was not to be expected that such good returns would always be realised. When but a light crop was raised, and cocky chaff was almost as valuable as the wheat, the stripper was undoubtedly the machine to use. The harvester was not satisfactory with a crop yielding less than an average of 5bush. per acre, owing to the amount of wheat blown away in the operation. In addition, there was a lot of machinery being hauled around the paddock for little work, a great expense and hard work for the horses. While the harvester was doubtless a great saver of labor with heavy crops, in this district the labor was frequently but a small matter owing to the light yields. He would therefore recommend the ordinary damp-weather stripper and the horse-power winnower. Horse-power because it was easier than the motor to manage. Two or three farmers should co-operate to buy such a winnower, which, with four men, would clean from 180 bags to 200 bags of grain per day. Three crops of 1,000bush. each could be so cleaned in from two to three weeks. An advantage of such an arrangement would be that on days which were unsuitable for stripping to proceed the three men could work together on the winnowing, and so push forward the work faster than is ordinarily done. Farmers so combining would need to be prepared to "give and take" a little, and so all could be arranged to their mutual advantage. Members generally agreed with the writer, one contending that as much could be reaped in a given time with the stripper as the harvester, allowing for loss of time frequently experienced with the latter. While admitting that the harvester cleaned the wheat well, members thought that owing to the frequent light crops the damp-weather stripper was the machine best suited to the district.

Dry Farming.—Mr. T. Griffin reported on his experiments for the Agricultural Department. He had eight 5-acre plots, three of which were ploughed 6in. deep and three 4in. deep, early in the spring of 1907, while the other two were ploughed a few weeks before seeding. All the land was worked lightly with scarifier or harrows before ploughing. Of the three plots ploughed 6in. deep, one was worked with subpacker directly afterwards and this yielded over 23bush.; another was subpacked before seeding and yielded just under 21bush.; while the third, which was not subpacked, gave 20½bush. The other three fallow plots were treated similarly, and gave 17bush. 42lbs., 12bush. 22lbs., and 14bush. 21lbs. respectively. All these plots were cultivated during the spring and summer after rain, to destroy the weeds and keep the surface loose. The plots that were ploughed in the autumn gave 14bush. where it was subpacked and 12bush. 44lbs. where not so treated. The rainfall during this year was much above the average. Members though that an extra yield of 3bush. or 4bush. per acre would repay the farmer in most seasons for the additional outlay incurred in cultivation. Others considered that with 10 good working horses 200 acres could be cultivated and cropped in this manner. Mr. Griffin stated that the fallow land he had cultivated in the ordinary way and under the same conditions as the experimental plots yielded only 9bush. per acre, showing that the more scientific cultivation resulted in double the yield.

Arden Vale and Wyacca, May 3rd.

(Average annual rainfall, 16in.)

Present—Messrs. Eckert (chair), Greer, Rodgers, Miller, F. and H. Schumann, Pearce, jun., Pradel, Hantschke, Hannemann, C. F. Pearce (Hon. Sec.), and five visitors.

Cattle and Sheep.—Discussion on this subject took plate. The district was considered to be a most healthy spot for cattle The herbage was well assorted, succulent, and fattening. There was an abundance of food permanent bushes, and water of first-class quality. The only thing needed was common sense and systematic management in providing fodder to carry the stock through the dry periods in good condition. Then a great deal of money could be made in the dairying industry. What had been accomplished in the past had only been playing with the business. Mr. Francis, from New Zealand, who had previously been farming in this locality, gave valuable information regarding the management of sheep and cattle in that country. No ensilage was required there, but the ironbark pumpkin was extensively cultivated. It was not uncommon to obtain a return of 30 tons to the acre. This fodder was excellent for preventing scouring in stock in the early spring when other feed was young and squashy The pumpkins would keep all through the year, and only required chopping up with an axe to be ready for feeding. All classes of stock thrived on them, and they gave no taint to milk. It was thought that settlers on the Murray swamp lands should give this crop a trial.

Coomooroo, April 26th.

(Average annaul rainfall, 12in.)

Present—Messrs. Kirkland (chair), Brown, Brice, Phillis, Berryman, H. and L. Avery, Polden, Toholke, Gregory, Kildea (Hon. Sec.), and one visitor.

Dry-seeding.—In view of the continued dry weather, discussion took place as to whether it was wise to continue seeding. Members were of opinion that so long as no rain fell sowing could be proceeded with in safety, as the ground was not sufficiently damp to cause the seed to malt. Where manure had been applied it was feared that it would have attracted sufficient moisture from the surrounding soil to cause malting. Care should be taken not to sow deeply. Manures pay well in this district, provided the seed is put in after a good rain has been experienced. Mr. Brice did not think it wise to sow after the middle of May in this locality, as the dry weather usually experienced in the spring was against successful results from late sowing.

Multiple Wheatheads.—Mr. Brown stated that he had found in his crop last year some stems with several heads of wheat on each. Mr. Kirkland thought this would be Egyptian wheat. [We have seen this abnormal development on other varieties of wheat, but nothing is known of the cause.—Ed.]

Pickling Wheat.—Some discussion on this subject took place. The opinion was expressed that seed pickled with bluestone six weeks before sowing would not germinate. [This is incorrect; pickled seed left over for 12 months has, on several occasions, been sown and germinated satisfactorily.—Ed.] It was agreed that pickling was unnecessary when clean seed was sown in dry land. Pickling with bluestone was advised if seed is at all smutty. Mr. Berryman would not keep pickled seed more than a week to nine days before sowing. He had sown some wheat broadcast, and some of the same lot with the drill, and while the former crop was clean the latter was smutty. If the seed was smutty members would prefer to get new clean seed.

Oats for Horsefeed.—Mr. Kirkham advised growing some oats each year for horsefeed. The grain should be crushed to prevent the crops getting oaty. Some discussion ensued on the question of whether black oats were a degenerate form of the ordinary white oats. [What is meant by black oats ? There are several cultivated varieties of oats which produce a grain with black hull; if the question refers to one of these the answer is " No."—Ed.]

Coomooroo, May 10th.

(Average annual rainfall, 12in.)

Present—Messrs. Berryman (chair), Brown, H. and L. Avery, A., J., and R. Polden, Phillis, Brice, Toholke, Ward, Robertson, and Kildea (Hon. Sec.).

Lampas in Horses.—Mr. Avery inquired *re* treatment of this complaint. Mr. Polden said the best thing was not to interfere with the animal, but others advised lancing or burning the first ridge only. One member held that burning was not so painful as lancing. When the bars got level with the teeth they must be attended to and the animals put on soft food. [The best authorities contend that neither burning nor lancing is necessary, except in severe cases, in which event lightly scarify the bars and rub in a little salt or alum. Feed on soft food until the tenderness passes off. It is generally advisable to give a laxative. See article in January, 1909, issue, page 536.—Ed.]

Horse-breaking.—Mr. Brown read a paper on " Breaking in Draught Colts." He would break in the colt when about 2 years old, but give him very light work and for a short period. He thought a colt broken in at 2 years and carefully handled was quieter and will develop better than if left until 3 or 4 years of age. In breaking him in, never knock him about the head or handle him roughly. Mr. Brice objected to a 2-year old colt being broken in, as they were not strong enough. Messrs. Avery, Ward, and Berryman thought the horse better for being handled and exercised when young. Members thought the fact that the colt slipped its shoulder was no proof of carelessness or roughness in breaking it in, as this trouble may result from different causes. Mr. Avery asked which was the best team to work the colt with. Against the pole of the wagon was suggested by several members. Members were agreed that winkers were as good as the open bridle, so long as care was taken that the winkers were not too close, and that the horse could not see over them.

Cropping Stubble.—A discussion took place on the cultivation of stubble land. Mr. Polden ploughed early, and then scarified the seed in. Mr. Berryman would work the land with eight-furrow skim plough. It was agreed that the disc cultivator was very useful where there was much rubbish, but it did not cut the hard patches of soil. Mr. Berryman would scarify the seed in; he thought the scarifier-harrows as good for this as the scarifier. The diamond-shaped scarifier tines were considered preferable to the square shares, as they entered the hard ground better. Although the square shares cut the grass better, they skimmed the ground too much. The question of the best ploughs was also discussed, but members were much divided in their opinions. It was decided to endeavor to arrange for a field trial of ploughs and cultivators.

Cradock, May 1st.

(Average annual rainfall, 10½in.)

Present—Messrs. Lindow (chair), Marshall, Solly, Paterson, Fitzgerald, Hilder, Glasson, Richards (Hon. Sec.), and two visitors.

Smut.—The following statements were made in regard to this disease:—If clean wheat were sown on dry ground, the crop would be free from smut. If clean seed were put on damp ground, there would be more or less smut in the crop. If smutty seed were used, it naturally followed that a smutty crop would result. The majority of those present were of opinion that wheat pickled with bluestone was less liable to smut, and that it was best to pickle on a floor.

Death of Cattle.—It was reported that one man had lost seven head of cattle within the last month. Many members were of the opinion that the dry feed was the cause of the trouble, and where cattle were given a change of feed they benefited by it. Mr. Paterson reported the loss of a valuable mare. *Post mortem* examination revealed three red worms about 1in. in length and about the thickness of a big pin in the arteries along the back. They had perforated the stomach, and two large clots of blood were found therein. Mr. Paterson gave the following recipe for dry bible, having proved its worth:—One pound of Epsom salts, ½lb. treacle, ¼lb. sulphur, and a little salt. This mixture to be administered twice daily for three days. If the beast was not then relieved, it should be given carraway tea.

Foxes.—A few of these animals were to be found in the district. Where rabbits abounded (especially young ones) the fox did not trouble sheep; but if they were scarce, Reynard helped himself to a fat lamb occasionally.

Davenport, May 13th.

(Average annual rainfall, 9in.)

Present—Messrs. Bothwell (chair), Gosden, Bice, and Holdsworth.

Horse-feeding.—Mr. Gosden read a paper in which he indicated what he considered to be the best way to feed horses. It was a very bad practice to put a large quantity of chaff into a common manger for a number of horses, making this suffice for 24 hours or more. Such a practice often resulted in the food being fly-blown, owing to its being slobbered over by the horses after drinking, and also the younger animals did not always get as much food as they required. If green feed were scarce young horses should be fed apart from the others, and should have as much green feed as was available. Failing this they should have a liberal supply of bran, with a hot mash occasionally. Oats should not be given often to young or very old horses, and if given they should be crushed. The practice of feeding chaff alone was condemned as being false economy. It had been proved that it paid to feed bran with the chaff, both in regard to the condition of the horse and the amount of work accomplished by it. Horses should be given only sufficient for one meal at a time. There should be three meals a day at fixed times, and the evening one should be the largest. In discussing the paper Mr. Bice said much care was necessary to keep watering-troughs and feed-boxes clean. Mr. Bothwell, while agreeing with the general views of the paper, thought that oats and chaff gave better results than bran with chaff. The latter caused the animals to perspire, while oats had not this effect. Horses were stronger, though not so fat, when fed on good oats and chaff. He believed that chaff should be sieved.

Dawson, May 1st.

(Average annual rainfall, 10½in.)

Present—Messrs. Renton (chair), Meyers, J. and W. A. Wilson, E. and S. Smart, Dunn, Ferguson, Nottle, Quinn, Burdon, Warner, Baker, Kennedy, Davies, and Hodges (Hon. Sec.).

Fencing.—This matter was dealt with at some length by Mr. Kennedy, who first gave his attention to the question of posts. In the earlier days of that district a good variety of timber was available for fence posts, such as pine, sandalwood, and mallee. To-day the choice was more limited, and it was a difficult matter to secure good posts. Of the timbers enumerated above, the pine was the best native wood of the district, while the value of the mallees placed in order of durability, was as follows :—Pipe or hollow, white, red, and black or swamp mallee. Some people had condemned the black mallee, but the writer's experience had been that the older timber with the lighter-colored bark stood fairly well, while the younger with rough, black bark very soon rotted. The durability of posts was largely determined by the soils into which they were put ; some soils being much more destructive than others. They stood best of all in limestone land. A great deal depended upon the time of the year in which they were cut. If cut in winter, they dried much more slowly than if cut in summer, and consequently were harder and more durable. When posts were cut and waiting for use they should be stood on end, and not stacked lengthwise as was commonly done. Mallee posts, if kept for several years before being used, were very liable to dry rot soon after being erected. As posts became more difficult to procure very serviceable fencing-droppers were being extensively used, resulting in a saving of time and labor. These were obtainable in various thicknesses (price according to weight), and of any length desired. Holes for wires were punched by the maker at any intervals required. Iron posts could also be had at reasonable prices, and were very handy for erecting temporary fences, being quickly put up and easily shifted when necessary. Where rabbits and other vermin were troublesome, and where sheep were kept, it was advisable to erect wire-netting on boundary fences. The saving in feed alone would be worth the annual instalment on the netting, and there would be no danger of sheep being boxed with a neighbor's or travelling flocks. A good way to construct this fence would be to put substantial posts in the ground to a depth of 20in., 18ft. apart, with one strong dropper half way between the posts. Or as an alternative to put the posts 30ft. to 45ft. apart with two droppers at equal distances between. The top wire should be barbed, with two plain wires below, and the strainers should be 2ft. 6in. in the ground, and not more than 120yds. apart. For cattle, three wires were usually sufficient, provided one was barbed. The posts for such a fence should be 12ft. to 15ft. apart, or 24ft. with one strong dropper between, while they might be put 36ft. apart if two droppers were used. The top wire should be 1ft. above that next below, and there should be from 9in. to 10in. between that and the third. In erecting posts they should be put with the bend all the one way, and should be as upright as possible. A little extra time spent in trimming when cutting the posts would add greatly to the appearance of the fence. When refencing, posts should never be put into old postholes. About 3ft. 6in. was a reasonable height for the usual fence. Barbed wire was a great guarder of stock, and fences lasted much longer with it than without. Having good fences went a long way towards having good neighbors, while bad fences were often responsible for the opposite state of affairs, and caused endless trouble. A good discussion followed, in which members indorsed the statement that posts should be cut in winter. Mr Meyers advocated the use of hollow mallee, so as to permit of a supply of air which would help towards preventing the ravages of the white ant. The grey mallee was better still, as these termites would not touch it Mr Renton advocated tight straining from the outset He had a pine fence which had been up for 27 years, and was good for a further similar period Illustrations of "King Loc" and "McNally" droppers were exhibited: Mr. Baker thought posts should be moderately charred up to 2in above ground.

Johnburg, May 1st.

(Average annual rainfall, 9½in.)

Present—Messrs. Read (chair), Dunn, Potter, King, Brook, and Chalmers (Hon. Sec.).

Cleaning Pea Rifles.—Mr. Dunn said trouble was often experienced in clearing the barrel of a pea rifle from an obstruction caused by the cleaning rag getting jammed. He filled the barrel from the breech end with water, then inserted a cartridge with the bullet cut off close to the powder, and fired it. He had found this safe and effective. [Care should be taken, as there is considerable danger of injury at the breech.—Ed.] Pea rifles were so largely used in the destruction of vermin that the question of cleaning them was of importance. He found four or five lengths of ordinary bag twine about 5in. long attached to a piece of fine galvanized wire very useful. This did not break like rag. If the barrel is badly leaded, insert a cork in the end and fill with vinegar. Let stand for a while, then clean with an oiled twine swab.

Warts on Cows' Teats.—Mr. Brook wished to know how to remove warts from cows' teats. [The application of castor oil daily—after milking—for a few days has been recommended for this trouble.—Ed.]

Morchard, May 4th.

(Average annual rainfall, 11½in.)

Present—Messrs. Scriven (chair), Kirkland, Toop, Kupke, Peak, Scriven, jun., and McDougall (Hon. Sec.). and a number of visitors.

Homestead Meeting.—This meeting was held at the homestead of Messrs. G. and H. Kupke, there being a good number of visitors, including several members of Wepowie Branch, present. During the inspection of the farm special attention was given to the chaffcutter and engine recently purchased by Messrs. Kupke. The chaffcutter is a No. 4 Bagshaw, with 5½ H.P. motor engine, and the latter was found to work very smoothly. Members were greatly pleased with this outfit, and expressed the opinion that horseworks for chaffcutting were out of date.

Treatment of Cattle.—Mr. Peak read a paper on this subject. He was surprised at the cruel way cattle were often treated, and thought this must be due to ignorance of the needs of stock on the part of their owners. Dairy cattle in particular required kind treatment. Dogs should not be allowed to hunt the cattle. Regular hours of milking and feeding should be observed. He preferred some of his cows to calve about April, and though this necessitated hand-feeding, the high prices realised through the winter would make it profitable. If hand-feeding cannot be practised, the cows should calve in August.

Mount Remarkable, April 24th.

(Average annual rainfall, 21in.)

Present—Messrs. Giles (chair), McIntosh, Yates, Bauer, Connell, Smith, and Lambert (Hon. Sec.).

Utilisation of Land.—Mr. Bauer read a paper on the better use of land, as follows:—"There has been considerable improvement of late years in the methods of farming in this State, but much more can be done in this direction. We do not get nearly as much from the land as it is capable of producing. With the experiments at the Roseworthy College to guide them, farmers should endeavor to increase the carrying capacity of their farms. During the last few years a lot of new land has been opened up and brought under cultivation which no doubt is of great benefit to the State. There is, however, room for a much larger population on the land that has been occupied for years. If farmers would go in for more intense cultivation, and the raising of stock; if they would expend more capital in the improvement of their holdings, in up-to-date machinery and upon fertilisers, they would provide profitable occupation for their sons and daughters instead of it being necessary for them to go to distant parts to take up land. There is a mistaken idea as to what is meant by mixed farming. Some think it means to go back to grazing without cultivation every other year, or two years out of three. In reality it means cultivating the land, spreading manure, and sowing fodder plants, so that food may be raised for stock in addition to raising cereal crops. To sow peas, clover, and similar plants, not only for feeding stock, but to plough in green, would be profitable, greatly increasing the fertility of the soil, and more than paying for the extra labor by the increased yield of the next crop. Weeds would be unknown on such land, or if any did appear the land would be enriched by their being ploughed in. More attention should be paid to the selection of seed, not only in choosing good varieties, but it should be graded. This would insure small and shrivelled grains being removed, and if sown at an even depth the crop will all come up at the same time, and be much more even for harvesting. It is sheer waste to sow cracked grain. The operations at the Roseworthy Agricultural College, as published in the *Journal*, should be closely watched by every farmer; for the benefit which the State derives from these demonstrations cannot be overestimated. What can be done at Roseworthy can be done on any farm in this district. The land is capable of producing not only heavy crops of wheat, oats, and hay, but is suitable for dairying, rearing and fattening lambs, keeping poultry and pigs, for growing fruit and vegetables; in fact, almost anything could be produced with a little attention." The paper was freely discussed, members generally agreeing with the views expressed.

Green Feed.—Dealing with the question of green feed, referred to in April issue of the *Journal*, Mr. Yates recommended Steinwedel wheat for this purpose. He had sown it at the same time as barley, and it had outstripped the latter.

Orroroo, May 14th.

(Average annual rainfall, 13½in.)

Present—Messrs. Dunn (chair), Jamieson, Addison, Robertson, and Tapscott (Hon. Sec.).

Date of Congress.—Members were in favor of opening meeting being held on Monday evening in September Show week.

Kubanka Wheat.—The 3lbs. of this variety of wheat supplied by the Agricultural Department last year grew remarkably well, reaching a height of about 4ft. It started well, giving a fairly fine straw, and it was thought it might be good for hay. The growth, however, was too rank, and this, together with the locust plague, resulted in a yield of only about 12lbs. of very shrivelled grain.

Quorn, May 1st.

Average annual rainfall, 13½in.

Present—Messrs. Thompson (chair), McColl, Schulze, Noll, Twopenny, Cook, Finley, and Patten (Hon. Sec.).

A Visit to New South Wales.—Mr. McColl read an interesting account of a visit paid in February last to Koorawatha and surrounding districts in New South Wales, where several of their friends had settled. The country was fairly high, undulating, with long sloping hills of granite formation. The rainfall averages about 25in., and the district has proved very suitable for wheat-growing. A good deal of farming is carried out on the share system, and quite a number of South Australians have settled in the neighborhood. Several of these who started on the share system a few years ago have now farms of their own, and are doing well. The South Australians have earned a well-deserved reputation in this and other districts of New South Wales as good farmers. Set ploughs were mostly used, and the somewhat gritty nature of the soil keeps the mouldboard, &c., clean, and lessens the draught. A large proportion of the crop is sown on stubble land, ploughed up after harvest, and cultivated again before sowing. Federation wheat is popular as a grain producer. Most of the harvesting is done with the complete harvester, while a considerable quantity is cut with the binder and afterwards threshed. A steam-thresher travelled from farm to farm. Although the cost was greater than stripping, it was contended that one to one and a half bushels per acre more was obtained, while the stacks of straw were of value. The binder was often used to enable operations to be started earlier, and the crop secured against injury by storm. The wheat sent by rail is weighed in truckloads, and not by the bag as in this State. The rail carriage to Sydney, a distance of about 240 miles, came to 4d. per bushel, and that figure represented the difference between Sydney and local prices for wheat. He thought it would be a good thing if more of the large landholders in South Australia were to farm their land on shares with a view of ultimately selling some of it. The owner would get a satisfactory return, and it would enable deserving young men possessing a working plant but not much cash to secure a start. Members agreed that it would be to the benefit of the State if more of our large holdings were farmed on shares. The Chairman considered that owners would get much better returns from share-cultivation of a portion of their land, where the rainfall was reliable, than from sheep. In reply to question, Mr. McColl thought there was plenty of land in South Australia which, if worked on the share system, would pay quite as well if not better than in New South Wales.

Cattle Complaint.—Mr. Twopenny read letter from a resident of Port Augusta, who expressed the opinion that the so-called dry bible or paralysis in cattle was caused by a poisonous weed, and he recommended bleeding as a remedy.

Wepowie, May 10th.

(Average annual rainfall, 12in.)

Present—Messrs. Halliday (chair), Gale, Chrystall, Crocker, Pearce, Rielly, and Orrock (Hon. Sec.).

Congress.—Members favored Monday of September Show week as opening night for Congress.

Horse-breeding.—Mr. Halliday read a short paper on this subject. He urged the necessity for breeding good horses of whatever type the breeder considered best suited to his requirements. A first-class animal costs no more to feed, groom, shelter, and otherwise care for than does a mongrel, while, either for work or for sale, it is worth a great deal more. The service of a good stallion will, of course, be higher than that of a mongrel, but the best in this case was undoubtedly the cheapest. Care should also be exercised in selection of mares for breeding. Mares that are too old, or too weak and slow for general work, are often bred from, with the natural result that most of the foals are of a poor type, lacking in strength and spirit. Again, it was a mistake to breed from young immature mares, as her development was checked, and the foal was also likely to be weakly.

Wilmington, April 29th.

(Average annual rainfall, 17½in.)

Present—Messrs. Broadbent (chair), Hannagan, Heard, George, J. G. and W. Schuppan, Hoskin, McGhee, Zimmerman, and Payne (Acting Hon. Sec.).

Management of Conferences.—Suggestions from Port Pirie Branch in respect to the management of future conferences of the Bureau were discussed at length, and it was unanimously resolved that this Branch supports the proposals.

Takeall.—Mr. Hannagan read a short paper on this subject. He pointed out that this disease appeared to be increasing rapidly in different parts of the State. On his own farm the affected patches appear to be getting larger each year the land is cropped. Bay of Biscay soil is affected most. [Why not grow oats for two or three years? This has been found effective by all who have tried it, and the oats can always be used for stock, either as hay or grain.—Ed.] Various remedies had been suggested, and he had most success from cutting for hay for several successive crops. Last year he could find no trace of takeall in the portion of a paddock which had been cut for hay for several years in succession, whereas the rest of the field, owing to the presence of takeall, only yielded 4bush. per acre. He thought farmers should work in conjunction with the Agricultural Department with a view to finding some means of prevention. The paper was discussed and a committee was appointed to obtain all the information available on the subject.

Agriculture.—Mr. R. G. S. Payne read a paper on Agriculture—retrospective, present, and future.

Wirrabara, May 8th.

(Average annual rainfall, 30in.)

Present—Messrs. P. Lawson (chair), Lomman, Woodlands, Passow, C. and J. Hollett, W., W. H., and E. J. Stevens, Marner, Hunt, H. Lawson (Hon. Sec.), and three visitors.

Sheep on the Farm.—Mr. J. Hollett read a paper on this subject in the following terms:—“Sheep should be kept on every farm. They did not entail much labor when once the paddocks were properly fenced. This, however, was an important detail, being necessary for the protection of crops. The extra expense involved in making a fence sheep-proof when erecting it was not great, compared with the profit gained. Sheep saved labor in keeping land clean, they enriched the soil, and kept the table supplied with meat, thereby saving a butcher's bill. Sheep were one of the best paying items on the farm, as the income derived from them was nealy all profit. There was little or no expense in machinery or implements for cultivating or gathering the harvest produced. In the writer's opinion 100 good ewes should bring in about £60 per annum—say, 80 lambs at 10s. =£40, and £20 for the wool. Lambs must be well fed to realise 10s. per head. He had sold 113 Dorset Horn-Merino lambs for 13s. 3d. per head in a former year, and last season 85 of the same breed brought in 10s. each, while 23 younger and smaller lambs went at 7s. 4d. Had these been kept longer they would probably have brought as much, if not more, than the others. They were sold, however, to get rid of the mixed wool, and to avoid risk of loss which might have been occasioned by unfavorable conditions which prevailed at that time. It was not profitable to have many kinds of wool, as in farmers' lots the quantity was not sufficiently large to separate them. He considered the Dorset Horn cross very good for raising market lambs. Should a farmer have insufficient feed for lamb-raising he should keep a few sheep for his own meat supply, taking care of the skins of the slaughtered animals. He would then have a supply of cheap meat." The paper was favorably commented upon by several members.

Rabbit-poisoning.—Mr. E. J. Stevens asked whether there was danger of sheep being harmed by the strychnine and jam poison which was now frequently used. Members were of opinion that there was no danger, as sheep would be unlikely to lick off the stones the small quantity used as a bait.

Stinkweed.—Mr. W. Stevens asked whether anyone had had any sheep killed by stinkweed. Mr. P. Lawson stated that although he had a great deal of the weed in his paddocks he had not lost any sheep by it.

MIDDLE-NORTH DISTRICT.

(PETERSBURG TO FARRELL'S FLAT.)

Appila-Yarrowie, April 17th.

(Average annual rainfall, 14½in.)

Present—Messrs. Wilsdon (chair), Keller, Catford, J. H. and T. Klemm, Daly, Becker, Ruchstein, Jericho, and Mayor (Hon. Sec.).

Congress.—This branch is in favor of commencing the meetings on Monday evening of September Show week.

Tree-planting.—A paper dealing with this subject was read by Mr. Keller, in which he referred to the general scarcity of timber for all purposes. Destruction of timber on a wholesale scale in the earlier days was largely responsible for this, and right up to the present time very little organized effort had been made to replant. Land which was unsuitable for agriculture should be planted with trees. Corners of paddocks, strips of land alongside fences, and any waste land should be planted with different kinds of timber, so that the immense waste that had been going on for so many years might gradually be replaced. The writer thought the Government should offer a bonus to encourage those who were successful in growing trees suitable for future requirements of the State, such as railway sleepers, timber for building purposes, fencing, &c. He considered the sugar-gum to be the most suitable tree to plant in the Northern Areas as it was hardy and did well in almost any soil. Considerable discussion took place on the subject. Mr. Daly thought the Government should, if possible, compel landowners to plant. Where young trees have been supplied by the Forest Department, some supervision should be made and returns furnished (by the planter) as to the success or otherwise. It was recognised that the Government was doing a great deal in the matter, but a more active interest should be shown by those with land suitable for forestry.

Beetaloo Valley, May 3rd.

Present—Messrs. A. Cook (chair), Petrie, Bartrum, Thyer, Murphy, Bird, Woods, Joyce, Ryan, P. Cook (Hon. Sec.), and two visitors.

Orchard Management.—Mr. Burton read a paper on the planting and care of the orchard to the following effect:—"Fruit-growing for profit is a trade or business, and to obtain the highest measure of success the orchard must be made to produce the utmost at a minimum of cost. Thorough cultivation, cleanliness, systematic pruning, and constant vigilance as regards vegetation diseases are absolutely necessary. Discrimination is also needed in the matter of the varieties and crops to be grown. Large quantities of inferior fruit cannot be disposed of at satisfactory prices, neither is it profitable for an orchardist to have a few trees of a great many varieties. In regard to selecting a location, I would endeavor to locate myself as far as possible from existing orchards, as they are almost sure to be breeding grounds for pests, both insect and fungoid; and I would, if possible, start clean, and away from infected places. Being free to choose, I would select an alluvial soil having a sandy tendency, a soil the plough could be put in at any time without harm. In preparing land for an orchard different methods must be adopted according as the soil varies. If it is stiff soil, it must have a good dressing of humus ploughed in, either in the form of farmyard manure or green crops. If deeply and frequently cultivated throughout the summer, thrown open to the action of the wind, the rain, and sun, by planting time it is in a sweet friable state, ready for the trees. New land of any character, whether clay, sand, loams, or peat, should be fallowed deeply, and deep cultivation carried on through the summer to destroy weeds, and to promote a friable condition of the soil. As planting season draws near again plough as deeply as possible, say, 8in., and follow along same furrow with a subsoil plough, or an ordinary plough with mouldboard taken off. One may thus stir the soil 12in. deep. All fruit trees, excepting citrus or evergreens, I strongly advise planting end of May or early in June, as, when planted early, they make stronger growth. August or September planting is best for citrus trees, providing they can be well watered during the summer months. The best varieties of trees to plant would cause me serious consideration, as, at this point the orchardist without experience of the district in which he is locating himself is most likely to make grave mistakes, which cannot be recognised for years, and then take other years to rectify. In this district I would confine the varieties of apples to six or seven, namely, Jonathan, Cleopatra, Rome Beauty, Ben Davis, Scarlet Nonpareil, and Rokewood. With pears, in the first place, find out the favorite varieties in the market, as there is little use in growing sorts buyers do not like. Williams' Bon Chretien may safely be said to be one of the best market pears, and is always in good demand, also Beurre Bosc, Beurre Clairgeau, Josephine des Malines, L'Inconnue, and Winter Nelis did well, and I would plant these largely. In plums, I would plant principally Japanese varieties; and if in a prune district, Prune d' Agen, Fellemberg, and Prune Splendor. In apricots, Moorpark is the standard, but I would plant both early, medium, and late varieties. As to the best sort of peaches, I would not venture to say what I would plant; their name is legion, and every market has its favorite varieties, and there can hardly be said to be any standard sorts. In citrus fruits selection is much more limited, and if my land was suitable for lemons I would plant some each of Lisbon, Eureka, and La France. In oranges, I would plant Washington Navel, Jaffa, Joppa, Mediterranean Sweet, Paper-rind St. Michael, Valencia Late, and Ruby Blood; and in Mandarins—Beauty of Glen Retreat and Dancy's." Considerable discussion followed. Members differed in their opinions as to whether it was wise to break-up clay subsoils. Some would not disturb the clay, while others thought it should be opened, but not brought to the top. The question of varieties was also discussed. One member asked the best method of storing apples, and was advised to pack them carefully in kerosine cases lined with paper, then nail down and store the cases in the coolest place at his disposal.

Belalie North, May 1st.

(Average annual rainfall, 16½in.)

Present—Messrs. Tremlett (chair), Warner, Cummings, O'Leary, W. and H. Heithersay, Arndt, Bladon (Hon. Sec.), and one visitor.

Management of Conferences.—The suggestion from Port Pirie in respect to a committee of management was discussed, and the idea of forming such an executive body was indorsed by all present.

Date of Congress.—This Branch was in favor of meetings commencing on Monday in September Show week.

Manures for Wheat.—Mr. A. H. Warner reported that his experiments with wheat grown with and without manure last season proved that manure was invaluable to the farmer. The averaged reaped from the manured crops was 20bush. per acre, while that of the unmanured was under 12bush. In addition, the wheat grown without manure was poor in every way, being of no use for hay owing to the presence of all kinds of rubbish. Mr. Warner would not put in wheat again without manure.

Mount Bryan, May 3rd.

(Average annual rainfall, 15½in.)

Present—Messrs. Wardle (chair), Schmidt, F. and J. Price, Schoenburg, E. and T. Dollard, Caldicott, Connors, Beckwith, Gregurke, Tralaggan, E., A., and H. Collins, O'Connell, Kelly (Hon. Sec.), and about 50 visitors.

Wheat-growing.—Mr. J. Tralaggan gave a paper on this subject. He pointed out that climatic and soil conditions varied so much it was not possible to lay down any definite line of cultivation or use of varieties. To secure the best results it was necessary to obtain good seed of wheats suitable to the soil and district. For limestone soil he preferred Dart's Imperial, Marshall's No. 3, Yandilla King, Purple Straw, and Red Straw for grain. For heavier land he recommended Federation, Marshall's No. 3, Yandilla King, and Purple Straw. All seed should be pickled with a solution of bluestone at the rate of 2½lbs. to 5galls. of water. [This is far too strong; ¾lb. to 1lb. to 5galls. is ample. The strong solution recommended would probably have a serious effect on the germination of the wheat.—Ed.] Before sowing fallow he would prefer to roll the land unless it had been previously brought to a fine tilth. In no case should the seed be sown in solid or lumpy ground. On stubble or light limestone soil he would work the land well with scarifier or cultivator, as these will leave the bottom unbroken and make a good seed bed. If stubble land is ploughed it should be ploughed shallow. He liked to put on plenty of seed; 10 or 12 years ago they were told that the use of the drill would result in less seed being sown, but this was not the case. For good clear land he would not sow less than 60lbs. per acre, and his experience had been that up to 1½bush. could be sown with advantage. In regard to manures they were generally advised in the dry districts to use the water soluble phosphates. He had been recommended by a friend in West Australia to use Thomas phosphate, and had done so last season with satisfactory results. Wheat manured with this did not thrive so well in the early part of the season, but kept green longer than wheat manured with super. If possible he would work the drill north and south, as this was an advantage here where the heavy winds usually come from the west. He would not advise rolling after sowing until the wheat is well above ground. Harrowing with light harrows gives a nice finish and does not injure the seed. He harrowed with a fairly heavy roller, and had never seen any harmful results.

Social Evening.—This was principally a social evening, there being over 50 visitors present. Mr. Beckwith gave an interesting address, explaining the objects of the Bureau. Various amusements were indulged in, after which supper was provided.

Mount Bryan East, May 1st.

(Average annual rainfall, 15½in.)

Present—Messrs. J. Thomas, jun., Wilkins, Doyle, and R. Thomas (Hon. Sec.).

Saltbush.—Mr. J. Thomas, jun., read a paper on "Something about the Saltbush Country." He referred to the very extensive areas of Australia where the saltbush was one of the principal edible plants, and to the importance of this country owing to the immense number of sheep grazed thereon. The perennial saltbush was a wonderful drought-resisting plant, and possesses the great advantage over annual herbage inasmuch as it quickly makes a fresh shoot after rain too light to bring up other plants. Under proper management saltbush country will stand long spells of dry weather without material injury. At the same time, overstocking should be avoided; moderate stocking should be the rule and not the exception. Saltbush that has not been stocked for a few years may be fed down heavily for a time, but stock should be removed after the first rain. The bush will make fresh growth which will be of better quality, but it should not be fed down again until it is well grown. The feed being saline, fresh water was essential to the profitable occupation of saltbush country. The well and spring water usually contain an excess of mineral matter which was often injurious to sheep, but at the same time these permanent waters were a valuable asset in the dry season. Care should be taken to make the dams in suitable positions, and that plenty of catch drains are run out to obtain as much water as possible from the showers that fall. The drains should not have a greater fall than 1ft. to the chain, as if steeper there is danger of their washing into deep gutters. As loss by evaporation is heavy, it was important that the dams should be made as deep as possible. Silting-up is a trouble that has to be contended with, and the new silt scoops will be found very useful for removing this. Comparatively small holdings in saltbush country may be worked advantageously with a piece of inside country, but where the holder has no inside country a fairly large block was necessary for him to make a comfortable living. When this land was first cut up the area allotted to one man was too small, as wheat-growing was unprofitable. Parliament had recognised this fact, and that a considerable outlay on vermin-proof fences and water supplies was necessary, and the law now gave security of tenure with liberal conditions to encourage the occupation of this land. For this country the large-framed Merino sheep was undoubtedly the most suitable. On the smaller holdings where they could cater for the lamb trade, the Shropshire or other mutton breed could be crossed with the Merino, but the former were practically useless as wool sheep. The plain-bodied Merino with large frame, clean face, and good covering of wool with sufficient grease to preserve the elasticity of the fibre, was best suited to this country. They were hardy, good doers, and made splendid mutton sheep.

Port Germein, May 1st.

(Average annual rainfall, 12in.)

Present—Messrs. Crittenden (chair), Holman, Carmichael, Dahlenberg, and Blesing (Hon. Sec.).

Branch Conferences.—Circular from Port Pirie Branch in reference to management of future conferences of the Bureau was discussed, and members expressed themselves as in accordance with the suggestions.

Bureau Work.—Paper on this subject read at meeting of Miltalie Branch by Mr. E. P. Smith, and printed in April *Journal*, was discussed at some length. Members agreed with the writer as to the work of the Bureau.

Port Pirie, May 1st.

(Average annual rainfall, 12½in.)

Present—Messrs. Munday (chair), Smith, Wilson, McEwin, Jose, Nancarrow, Birks, Stanley, Finnigan, Johns, and Wright (Hon. Sec.).

Fodder Crops for Stock.—Paper read at previous meeting by Mr. Birks was well discussed. The Chairman said that he agreed almost entirely with the paper, but thought Mr. Birks' paddocks too small for a large holding. The expense of fencing would be heavy if the whole farm were divided into small paddocks. He was satisfied that a small plot of barley would give as much grazing as several times as large an area of grass. Mr. Stanley strongly advocated barley for early feed, but did not agree with the idea of reserving some of the grass paddocks for summer. In his opinion grass that was fed off during the early part of the year, and especially barley grass, gave much better growth later on than if left ungrazed. Taking one year with another he was satisfied that it paid best to feed the grass off when young. Mr. Johns agreed in the main with Mr. Birks, and referring to Mr. Stanley's remarks *re* feeding off, said there was considerable difference in the land in this matter. On Mr. Stanley's farm the grass would often stand feeding off when it would not on his holding. Mr. Birks said he did not advocate keeping stock off the grass altogether, but to stock lightly during the winter. He had reserved one paddock of barley grass until a little while ago, and now both sheep and horses were doing well on the dry grass. In his opinion barley grass had a greater feeding value than any other grasses grown in the district. He found sheep took several days as a rule to get accustomed to rape, but afterwards they became very fond of it.

Horse-breeding.—Mr. D. McEwin read a paper on "Will Horse-breeding on the Farm Pay?" In his opinion it will pay the farmer to rear two or three draughts and one light foal every year. There were always a few horses on the farm that are required for a limited period, and these could be used for breeding purposes, as both mare and foal will have a better chance than if the mare is in constant work. Where a man only has a few foals he can keep them in good condition, and there was no doubt that condition sold the animals. A few years ago he was of opinion that he could work the farm with mares and breed from them, so he sold all his geldings. He found, however, that the plan did not work. When the teams should have been fallowing and working the land, time was lost with mares waiting for the stallion, and then next season he could not get along at all with mares with foals. Two foals with the mares was quite enough in any team. Further, it was not safe to work mares heavy in foal in the middle of the team. When working the binder he had to change the mares every three or four hours on account of the milk. The result was that what with the bother of yarding and feeding eight or nine foals, and the lost time with the mares, he came to the conclusion that he was working on the wrong lines. It was often said that they would not miss the feed consumed by the foal, but if there are 10 or 12 to wean their feed will be no small item, as if they wanted their young horses to do well they must feed them well, especially at this time. Taking the average good farm horse, he is worth about £25 at 2 years old, and he thought that when full allowance was made for loss of time, stallion fees, including mares that miss, food consumed, and other incidentals, they would not have more than £2 or £3 profit on £25. He did not think it paid to keep young horses intended for sale after two years, as the farmer would have too many young animals on the place. If dry seasons come along horses will fall in price and hay will rise. Horse-breeding may be one way of getting their hay to market, but it was a very slow and uncertain one.

Gumming of Almonds.—The Chairman reported that his almond trees were suffering from gumming. Just prior to the nuts ripening the shells crack, and an exudation of gum takes place. Several members reported similar trouble and wished to know cause. [See article on Gumming in June, 1908, issue. This trouble is often caused by fungus attack, and sometimes follows injury by insects or mechanical means.. Spraying with Bordeaux mixture may prevent injury by fungus, but with almond trees of any size it is very doubtful if it would pay.—Ed.]

Redhill, May 22nd.

(Average annual rainfall, 16½in.)

Present—Messrs. Lithgow (chair), Pilkington, Wheaton, Steele, Dunsford (Hon. Sec.), and two visitors.

Stable Manure.—A paper on the best methods of applying this manure was read by Mr. Wheaton, as follows:—For vegetable-growing, manure should be carted fresh from the stable and spread on the ground as thickly as could be ploughed in with a single-furrow plough. In the month of June this should be ploughed to a depth of 8in., scarified, and harrowed as often as was necessary to keep the weeds down, and planted the following year. For grass land he advocated putting the manure on in the same way, at the rate of from 40 to 50 loads to the acre, spreading at once to prevent heating. Manure put on in this way would last for a long time, giving early grass for years. For cereal crops the manure should also be carted direct from the stable, and spread thinly on the land. This should then be left for grass that season, and when the land was fallowed and worked the weeds would be killed. Flower gardens were perhaps best treated with manure which had been left in a heap to rot, as this would save endless labor in keeping down weeds. Valuable manure was sometimes allowed to deteriorate in quality by being left a long time in a heap. The way to get the best out of it was to put it on the land fresh from the stable. Weeds would, of course, spring up, but only such growth as had been fed to the stock. Stubble was best treated by being trodden well with stock and then ploughed in. If it was necessary to burn stubble the land should be ploughed before the ashes were blown away; but, as a general rule, the more straw that was ploughed into the land the better. Chaff heaps could be distributed with a horse-rake, and so turned to good account.

Whyte-Yarcowie, April 3rd.

(Average annual rainfall, 13½in.)

Present—Messrs. Pearce (chair), McLeod, Pascoe, Mitchell, Ward, and Lock (Acting Hon. Sec.).

Harrowing after Drilling.—Mr. Mitchell called attention to the Campbell "Cocktail Harrows" for attaching to the seed-drill. This was a light inexpensive implement, and saved the labor of harrowing after drilling.

Stock Complaints.—Some discussion on complaint in cattle took place. Very little trouble had been experienced in this district from the complaint. Members thought that every effort should be made by the authorities to find out the cause and cure.

Leaky Tanks.—Elastic carbon paint and "S.P." paint were said to act satisfactorily in stopping leaks in cemented tanks.

Whyte-Yarcowie, May 10th.

(Average annual rainfall, 13½in.)

Present—Messrs. Pearce (chair), McCann, Bentley, J. and W. Hunt, E. and G. Jenkins, W. G. and F. H. Lock (Hon. Sec.).

Farm Economy.—A paper on this subject was read by Mr. J. Hunt, as follows:—"Every farmer should practise economy if he would make headway, and should make the most of all that he grew. The last few seasons had been prosperous, and necessity had not compelled the practice of economy as in years gone by; consequently men were apt to forget that the seasons might not always be good, and accordingly provision should always be made for bad times. Since the harvester had taken the place of the stripper, the heaps of cocky chaff once seen around the homestead and in the paddocks were almost a thing of the past. Not many years ago cocky chaff was sold for 6d. per bag, and this should not be forgotten. Instead of reaping the whole of the crop with the harvester, part could be reaped with the stripper; the extra cost of cleaning the wheat would be compensated for by the value of the chaff saved for feeding stock during the winter months. A number of farmers used the chaff carrier on their harvesters, but in the writer's opinion the only complete and successful chaff carrier was the Federal harvester. Another important saving could be effected by taking more care of the various implements and machinery. It was a common practice with some farmers when repairs to their implements were necessary, instead of attending to them in the proper way, to go to the nearest fence and substitute a piece of wire for a bolt or clamp, as the case might be. All implements and machinery should be attended to as soon as they got out of repair. Another way in which economy could be practised was by keeping the fences in repair; if neglected they soon became too bad for repairing, and a new fence was required. All knew that ill feeling between neighbors was often caused by bad fences. Another important economy on the farm was a forge and a few handy tools. With these the farmer could employ his time on wet days making eye-bolts, S-hooks, &c., and boys could learn something that would be of advantage and profit to them in later years. The aim of all farmers should be to make good interest on the money invested in the farm; this could only be accomplished by careful management and strict economy. Generally speaking, if the master was careful in the management of the farm, his men would be careful too; on the other hand if the master was careless of things in general, the men would probably copy his example." In the discussion which followed, Mr. G. F. Jenkins thought a more economical way of providing winter feed where the harvester was in use was to cut and bind a good stack of straw, chaff it, and feed to the stock with salt added to it. Another member recommended the addition of both salt and molasses. The care of harness by the application of suitable oil was spoken of by Mr. Pearce as yet another instance of farm economy.

Meat Meal.—Mr. E. M. Jenkins had purchased a bag of 28lb. of this food for 5s., and fed it with bran or pollard to his fowls. He considered it to be a good, economical food.

Cereals for Feed.—In response to the invitation on page 745 (April issue) of *Journal*, members expressed their opinions. Some considered the straw of Federation to be preferred by stock, and all agreed that straw that was blighted off was best.

Yongala Vale, May 1st.

(Average annual rainfall, 13½in.)

Present—Messrs. Battersby (chair), Lloyde, Marshall, Laubsch, Mason, Fowler, Travers, Schmidt (Hon. Sec.), and one visitor.

Manures for Wheat.—Mr. Travers introduced this subject in a paper, giving his views as follows:—For manuring red and cold land imported superphosphate gave the best results, while for limestone and white land he recommended nitro-super. Last year he sowed Federation on well-worked fallow land, some with imported superphosphate and some with colonial manures. [What kinds?—Ed.] The former returned 30bush. and the latter 27bush. to the acre. The writer considered that the imported superphosphate in this case advanced the growth of the crop in the wet weather better than the other manure used. For this district he recommended about 75lbs. of manure per acre, and on stubble ground, 30lbs. Manure should be kept perfectly dry and free from lumps, to make it run freely and evenly through the feeders of the drill. Should manure become damp and lumpy, it could easily and quickly be broken up by passing it through a coarse riddle. Such a riddle could be cheaply constructed by fixing wire netting of small mesh on a wooden frame. If this riddle were placed leaning against a wall with the manure spread out before it, the process of breaking up the lumps with the shovel and sifting it would take very little time. Drills which were fitted with double-force feeders for wheat and star feeders for manures sowed both grain and manure more evenly than others. In the lengthy discussion which followed, members agreed that the harrows should be used after the drill, and that manure should not be put into the ground too deeply ; they also favored manuring for grass. Marshall's No. 3, Federation, and Dart's Imperial were considered to be the best wheats for this district for grain, while for hay they favored Silver King.

LOWER-NORTH DISTRICT.

(ADELAIDE TO FARRELL'S FLAT.)

Angaston, May 1st.

(Average annual rainfall, 21½in.)

PRESENT—Messrs. Ball (chair), Friend, Player, Roberts, Sibley, Smith, Swann, Thorn, Wishart, Matthews (Hon. Sec.), and one visitor.

ORCHARD NOTES.—The recent visit to Mr. Sam. Plush's orchard, and the system of pruning adopted were discussed. Mr. Sibley opposed spur-pruning for apples on the ground that it caused the fruit to form in clusters, thus militating against effective spraying. He also considered that it caused bitter pit.

FROSTS.—The Chairman referred to a method of preventing damage by frost which had been explained in the *Scientific American*, and tried by the Messrs. Sage locally. Some tar and straw was placed in a half a kerosine tin and set alight at about 3 a.m. on frosty mornings. This caused a dense smoke to hang about the gully until nearly mid-day, and no damage was suffered from frosts.

BUTCHER BIRD.—Members agreed that, while this bird was a destroyer of sparrows, it did not multiply proportionately with the birds which it was to destroy, and would therefore not be of much use.

Mallala, May 3rd.

(Average annual rainfall, 16½in.)

PRESENT—Messrs Loller (chair), F and J Jenkins, G. and A. Marshman, A. V. and J. Nairn, Farrelly, Moody, Temby, East, McCabe, Jarmyn, Nevin (Hon. Sec.), and two visitors.

MACHINE SHEARING.—Mr. S. Temby read a paper on this subject to the following effect :—" No doubt all who keep sheep experienced the difficulty of late years in getting competent shearers. This, he thought, was due to most of the stations going in for machine shearing, and the young men are taking to them in preference to the blade shears, which were slower. He had had about 30 years' experience with blade shearing, and considered the man who averages from 60 to 70 sheep per day a very fair man, if he shears clean and does not cut the sheep badly. He had seen those who could do a great many more than that, but the majority could not. With farmers too often shearing interferes with haycutting and other farm business. He had had serious thoughts of putting two or three stands for machine shearers in his own shed, but after talking the matter over with those who have had station experience had decided to leave the business to others at present. There were companies prepared to erect machinery and run the thing on business lines, and it would be much better to have their shearing done by them. He admitted the price per sheep looks high, but when they consider the bother and loss of time and keep of extra hands under the present system, once group shearing was established they would find great saving of time and labor." A letter was read from a sheep shearing company offering to find machines and power, and do all the work connected with shearing from 6½d. per sheep. For 12,000 sheep they would have six shearers, and double that number for a group of 20,000 sheep. The paper was well discussed, and members generally expressed appreciation of the advantages of group shearing. The present system of hand shearing at each individual property involved unnecessary labor, delay, and inconvenience. To secure the advantages of the group system, the greatest difficulty would be the initial cost of a suitable building and yards, but members expressed their intention of making a strong effort to introduce the system for next shearing.

Reeve's Plains, April 8th.

(Average annual rainfall, 17in.)

Present—Messrs. Day (chair), Hall, George, Forrest, Jenkins, Alexander, and V. Day, (Hon. Sec.), and a number of visitors.

Spaying Cows.—Mr. T. Williams, Deputy Chief Inspector of Stock, gave some demonstrations in the spaying of cows. Dealing with the subject, Mr. Williams remarked :—" Under certain conditions it becomes just as necessary to spay the females of the bovine family as it is to geld the males, and there should be someone located in each farming district capable of performing the operation of removing the ovaries from cows or heifers the owners may not wish to breed from. The operation is performed on thousands of cows of all ages on many of the large cattle stations in the Australian States, and there is no reason why farmers should not carry out on a limited scale what the stations are doing on an extensive one. The young man who desires to become a competent spayer must be fairly strong and healthy, and possess plenty of nerve. He must also thoroughly understand what cleanliness and method mean. He must have a knowledge of the anatomy of the parts of the animal he intends to operate on, otherwise it will be folly to attempt it. In the country districts the young farmers should prove good material out of which to make capable spayers, and it is a comparatively easy matter for them to gain the required knowledge. The organs of generation in the ewe and the cow are—the difference of size being allowed for—practically alike. Aged ewes are frequently killed on the farm, and by the nearest township butcher, for meat. The student should go and carefully and repeatedly examine the organs of the ewe after slaughter, and observe the positions of the ovaries, &c. Having done this a number of times, make an incision through the flank (off and near) after the skin is removed. Introduce the hand and feel for the ovaries. Finger them until they become familiar to the touch. Now pay a visit to the local slaughteryard when a cow is to be slaughtered. After the animal's skin is off and the carcass partly drawn up, but with the organs still in their position, with the butcher's permission make an incision through the flank, about four inches in front of the hip bone, and spay the dead cow. This will not injure the meat. After operating in this way a few times the touch should be sufficiently familiar with the feel of the ovaries and surrounding parts for the student to begin business on a living animal. Aged cows of little value should be selected for the beginner's first few operations. For securing ordinary quiet farm cows and heifers, the usual farm yard and a strong bail will generally do. There must be a strong rail on the animal's near side, to which the body is securely lashed, to prevent lying down, while the head is secured with a rope to prevent withdrawal from the bail. The hind limbs may be tied together at the hocks. The articles and instruments required were two buckets, one containing hot and the other cold water ; two dishes or bowls ; carbolic soap ; plenty of soda ; two towels ; eight ounces of disinfectant solution, composed of two drams of pure carbolic acid, one ounce of pure oil of turpentine, in equal parts of glycerine and water, called No. 1 solution ; two (an extra one in case of accident) four-inch steel needles with sharp edges, as well as pointed ; an ordinary castrating knife in good order ; a Baker's spaying knife, procurable from William John Baker, the maker, Hunter Street, Sydney ; a supply of the best quality twine, which should be soaked in some of No. 1 solution for 24 hours. The cows to be operated on should be kept without food from 10 to 12 hours. Secure and disinfect the loin, hip, and flank by thoroughly washing with several fresh lots of hot water, soap, and plenty of soda. Where the hair is very long it had better be clipped away. The operator must now be quite sure his hands, arms, and instruments are free of anything which might contaminate the wound he is about to make. The instruments must be soaked in boiling water, to which carbolic soda and acid has been added, for some time before use. After the hands, &c., have been washed in hot water and soda rub them with No. 1 solution. The skin is now incised at a point about half way between the hip bone and the last rib, in the hollow of the flank, Make an upright cut, from 3½in. to 4in. long, clean through skin, which should be skinned back about an inch towards the hip. The several layers of oblique muscles are now divided with the fingers till the white membrane (the peritoneum) is reached, care being taken to follow the direction of the fibres, *i.e.*, they must not be torn across. The peritoneum must be carefully cut through with the knife guarded by the fingers. Now force the hand into the abdominal cavity, taking great care to avoid tearing away the peritoneum with the fingers, and making the operation difficult. Locate the position of the uterus, between the bladder and the rectum, and trace it along the near ovary—the farthest from the operator when operating from the off side—is found and is gripped firmly by the fingers of the right hand. Now pass the spaying knife in along the arm, and with the fingers place the membrane, to which the ovary is attached, in the curve of the blade and exert sufficient force to sever it. Now draw the hand out slightly, locate the off ovary and sever it, thus completing the internal operation. Care should be taken that the ovaries are not dropped inside. The skin incision must now be closed by drawing it together with five or six stitches. Cross-stitches tied will be the best, as the ends of the knot form a pad over the lips of the incision when saturated with Stockholm tar. When the stitching is finished smear with tar. A little of No. 1 solution may be poured on the muscle around. The animals should, if possible, be turned out to medium grass with still a growth in it, but not on clover or soft feed that may blow them. Keep an eye on the wound and add fresh tar when it appears necessary. The stitching seldom breaks away, but should this happen restitch. Keep the cows as quiet as possible for a week or two. If any should become blown up with gas give six to eight ounce doses of sulphate of magnesia. The best time to spay was during spring, before the flies become troublesome and the weather too hot. On the large stations, where the operation is performed by the flank and comparatively little trouble is taken in the way of antiseptic precautions, the losses are only a quarter of 1 per cent. On farms, provided the instructions set out in the foregoing are followed, no deaths should occur Deaths do not occur from the bleeding of the operation wounds, but from blood poisoning, following the contamination wounds by bacteria, conveyed by dirty hands, instruments, &c. There are aged cows as well as unprofitable ones (cuts, &c.) on nearly every farm where bulls are kept. Year after year they get in calf, and the owner cannot prevent it. They are frequently milked, though they do not pay for their grass. Such animals if spayed would soon make good beef. Heifers from unprofitable or otherwise faulty mothers should be spayed at six or eight months old. Then, again, if the farmer chooses, his profitable milkers may be spayed after dropping say the fourth or fifth calf. It is stated that good milkers so treated will continue to give a profitable flow of milk for years, only varying with the conditions of the season. Where there are a few young farmers who wish to become expert spayers they should form a class of, say, six for the purpose of studying the subject, and gaining the required knowledge of the anatomy of the animals by following the suggestions set out in this paper."

Riverton, May 5th.

(Average annual rainfall, 20½in.)

PRESENT—Messrs. Hannaford (chair), Cooper, Pannell, Mitchell, and Kelly (Hon. Sec.).

IMPROVEMENT OF PASTURE LANDS.—Mr. R. H. Cooper read a paper on the treatment of pasture lands, to the following effect:—"Almost every subject connected with agricultural operations has been dealt with in our different Bureaus, and no doubt the publicity given to such in the *Journal* has been the means of fostering and creating a desire to adopt the most up-to-date and profitable methods of utilising our agricultural lands. At the same time I think our pasture lands have been somewhat neglected, and a remark passed by a gentleman recently that, owing to the high price of land, we would have to go in for more intense culture to make the land return what it should, led me to think what we might do in that direction. At the present price of produce our pasture lands and small patches trouble us very little, but prices and crops may not always be so good, and if we have something to fall back on in lean years, so much the better for us. For several years some of the members of the Bureau have sown from 40 acres to 60 acres of peas with good results. They have been able to fatten their late lambs and old ewes and sell the same at good prices, and they still have good feed for their stock in the stacks of pea straw. If, as some contend, pea-growing improves the following wheat crop rather than lessens it, then it goes without saying that pea-growing will pay us. Most of us have tried growing early feed for stock, such as mustard, rape, barley, oats, &c. I prefer barley, as it is a quick grower and the stock will eat it far better than rape. One gentleman told me that he had more feed last year off 16 acres of barley than from 50 acres of grass land, and often a good crop of grain can be reaped after grazing for several months. Most of us have a few acres of pasture land around our homesteads which return us very little. Why is it neglected ? We manure our agricultural land continually but never think our grass lands require such treatment, thinking, no doubt, that the droppings from the stock grazing thereon improve it sufficiently. This, however, is not so, for every pound of meat or butter or other product taken off the land removes a certain amount of strength. We have all noticed the large bunches of rank grass growing out of the heaps of animal droppings in various parts of the paddocks, especially where the stock congregate or camp. Now, would it not pay us to put on a man to knock these droppings to pieces and scatter about, thus ensuring a more even growth of herbage. Or, better still, run sharp harrows over the grass land where possible, at the same time sowing some manure. An instance of what can be done with stable manure may be seen on Mr. McKenzie's block, land that was practically bare and useless a few years ago, but to-day grows a wonderful crop of herbage—all the result of manuring. My opinion is that the land around here is far too valuable to be lying out to pasture. Those of us who have land suitable, and I think most of us have a little, should try a small patch of lucerne. Enough could be grown on one acre to keep all our milch cows in good milking order, and enable us to keep the horses healthy. We have heard it said that the water about here is not suitable, but this is not correct. Mr. Mitchell has supplied me with particulars respecting his plot of lucerne. The acre of ground was ploughed deep just two years ago, then heavily manured and worked down to a very fine tilth. It was sown and cross drilled with 20lbs. of Hunter River seed on August 1st, 1907. It had no water but the natural rainfall for 11 months, yet at the end of that time he began cutting it, it being a foot high. He has cut five crops since then, and is cutting the sixth. As he cut it he watered it with three sprinklers, and estimates that he put 200,000galls. on the one acre for one crop, or an average of 6,000galls. per day. Of course this entails a lot of labor, but it is worth it, as from eight to 10 cows could be kept through the summer on the one acre." An interesting discussion followed, members agreeing that the pasture land generally was not used to best advantage, and that with proper treatment a great deal more feed could be grown. Most farmers put in from 15 acres to 25 acres with barley, rape, or other early feed for their stock, the former being most favored, as they can not only feed it off several times during the winter, but also get a fair crop of grain if desired. The value of a small plot of lucerne is also being recognised, and a nice sample was tabled by Mr. Mitchell, the sixth cut since August last.

YORKE PENINSULA DISTRICT.

(TO BUTE.)

Bute, May 4th.

(Average annual rainfall, 15in.)

Present—Messrs. Wauchope (chair), Sharman, Schroeter, Stevens, Barnes, M. and D. McCormack, Scholefield, McEvoy, Cousin, and L. McCormack (Hon. Sec.).

Successful Farming.—Paper read at previous meeting by Mr. Trengove, on "Some Qualities necessary to Successful Farming," was discussed. Mr. Barnes said many of those present could remember when farming was considered merely a matter of brawn and muscle, but the present up-to-date system required the exercise of considerable thought and judgment. Much of the arduous toil had, as a result of the adoption of improved implements and machinery, been dispensed with. Mr. McEvoy admitted the great improvements that had been made in farming practices in South Australia, but he thought they had still a lot to learn in respect to the utilisation of their lands. An extract on "The Value of Chemistry in Agriculture" was read by the Hon. Sec.

Kadina, May 6th.

(Average annual rainfall, 15½in.)

Present—Messrs. Pedler (chair), Roach, Correll, Martin, S. and D. Edyvean, Westphall, and Rose, and visitors.

Horses—Breeding and Management.—A paper on this subject was forwarded by Mr. J. W. Taylor and was read. The following is the substance of the paper:—The best bred and soundest horses are the best for all kinds of work, but there is not nearly enough attention paid to the selection of mares for breeding purposes, more particularly on the stations where great numbers are bred. If sheep and cattle were bred with as little care, we would soon have a lot of mongrels not worth the grass they eat. Many of the mares are themselves unsound, and it is, therefore, no surprise that so many horses develop unsoundness of feet and limbs before they are seven or eight years old—just when they should be at their best—and, in consequence, are unfit for hard work for the remainder of their lives. How very few really sound good horses could be picked out of a mob from any of the largest breeders. If, instead of as at present, breeding from all the females, they were culled yearly in the same way in which all the best breeds of sheep and cattle have been built up, a more uniform and even stamp would prevail, and unsoundness be the exception. Any young man, who is a judge of horses and has capital, who cared to take some of the abandoned sheep runs would do well if he were careful. Of course, to start a horse station by itself means a considerable outlay, and there can be no return for about five years; consequently, it should be started in conjunction with sheep or cattle. Sheep are preferable, as they return something the first year. Really good, sound, shapely horses will always sell at profitable prices. In my opinion this is always done better by the single-judge system, rather than by having two or three judges. Frequently one sees unsound horses getting prizes. Even at the Adelaide Show I have seen an unsound horse being awarded first prize. Also at shows you may notice the first-prize horse, a really good one, well deserving the prize, and the one which gets the second prize nowhere approaching it in quality; the judges, however, in their mercy or ignorance, give it a second prize. But this is not as it should be, because for one who knows a really good horse from an indifferent one there are fifty who do not, especially when the animal is loaded with flesh and well got up. The consequence is that the fifty who do not know are guided by the opinion of the judge, consequently they think he must be a good horse, and are therefore encouraged to put their mares to him. Judges should give their judgment fearlessly and fairly, not thinking of the way it is going to effect the exhibition. They should also put in writing why they do not give a certain horse a prize, as the exhibitor and those concerned would then know why the horse was rejected. In breaking in colts it was a great mistake to think strength and ability to ride the chief essentials. Kindness and patience are of far more consequence. I have seen a sulky colt thrashed unmercifully, dragged about an hour and more, the coltbreaker mad with temper because the colt would not give in. The remedy for a sulky colt is very simple. Do not flog or knock him about in any way, but simply tie him to a post as high up as possible, say 6ft. or 7ft., with the rope passed under his chin, and between the chin with a saddle or other suitable strap which connects the two rings of the bit, fasten the rope round the colt's neck, tying it in a bowline knot so that it will be easily unloosened when required. The reason for keeping the rope under the chin is to prevent it from getting over the horse's poll and choking him; the reason for tying high up the post is to prevent him from being able to pull hard enough to hurt himself. When he pulls the rope inclines to lift him off his feet, consequently he cannot pull hard enough to hurt himself, or to break the rope, and it is only a question of an hour or two until he will have got rid of his "sulks." Sulky colts make fair workers, and when once broken in they will always require tying back to prevent them working too hard, or doing more than their share. You often hear a horse called a jib, as if it was born that way. For one horse that is naturally a jib there are a hundred jibs made by bad drivers. Very often the driver will load a colt too heavy and stick him up. The consequence is he is never as good as if he had been loaded lightly until he is quite used to the work. A great many good horses are spoilt by the bad judgment of the loader or driver. You will often see the slow horse in the team driven out of his pace to keep up with the faster ones; consequently he soon begins to show signs of over work. A reasonable man will keep back the faster ones to the pace of the slow ones, and thus get more work out of his team than the one who is always whipping up the slow horse. Some people put too much feed in the feedbox at the time, and the result is that the horse picks out the best and noses over the rest, and will not eat it. One requires to find out about what his horse can eat at a meal, and not put more in the box until it is cleaned out. Horses are something like human beings—they can do and do well on less than they can eat. Often you will see a driver or rider of a shying horse punish him for so doing. This is the very worst thing to do. Punishment will never cure him, but will make him worse, and may cause a serious accident, as he may shy in an awkward place on the road and, expecting to be punished, bolt as well. To cure a shying horse, you must, if you see he is likely to shy at anything, stop him and let him have a good look at the object of his fear, and, if possible, get him coaxed up to smell it, and in a little while he will rarely shy. Mr. Correll said he agreed very largely with the paper. A mare that had proved herself to be a sure breeder and a good mother was a valuable asset on the farm. Good-tempered mares were always to be preferred for breeding purposes. He thought that sometimes at shows it was the owner and not the horse that was judged. Unsound horses should be rejected in the show ring. Quietness and patience were the chief factors in successful colt-breaking. If farm-bred horses are handled early they do not require a great deal of breaking in, but station-bred horses needed a good deal of care and attention. Mr. Edyvean said he had had 50 years' experience with horses, and had found that as a rule the pure-bred draught horses were good tempered. Mr. P. Roach said that sometimes a mare of indifferent type produced good foals owing to the fact that the mare was well bred. The progeny from such a mare should not, however, be bred from. One of the best ways to break in a colt was to put it in the centre of the wagon team with a light load. For instance, with five horses and a colt in a wagon, he would carry a little less than a five-horse load, so that when the colt hung back the rest of the team would pull him along without undue effort. There were very few really good drivers to be obtained; not one out of 50 men who applied for employment on the farm were good drivers.

Pine Forest, May 4th.

(Average annual rainfall, 13in.)

Present—Messrs. Johns (chair), Adams, Nelson, Edwards, Carman, Bayne, and Barr (Hon. Sec.).

Stock Complaints.—Mention was made of the difficulty experienced by many farmers in this district in seeding operations owing to the prevalence of influenza among their horses. Reputed cures were discussed, in which Stockholm tar, carbonate of ammonia, and sweet nitre were mentioned, but proportions and doses were not available. Anxiety was felt at the reported proximity of the disease known as dry bible. Mr. Carmen reported the presence of small red worms in drinking troughs containing Beetaloo water. As Veterinary-Surgeon Desmond had attributed some deaths of horses to red worms, he wondered if these were identical.

WESTERN DISTRICT.

Cummins, May 1st.

Present—Messrs. Cooper (chair), Hill, Durdin, Hall, Roe, Gordon, Nosworthy, Brown, Farmilo, Potter, Hamilton, Saby, R. and W. Siviour (Hon. Sec.), and two visitors.

Co-operation.—Mr. Saby read a paper on this subject dealing with the benefits of co-operation and the work of the South Australian Farmers' Co-operative Union. The paper was well discussed, members generally agreeing that more co-operation on the part of the producers was necessary.

Goode, April 24th.

Present—Messrs. Tonkin (chair), Geue, Burner, Watson, Lymn (Hon. Sec.), and two visitors.

Horse Complaints.—Members reported disease in horses by which one resident had lost three horses and had three others in the slings. The animals showed no signs of sickness until they got down, and were unable to rise. The trouble was considered to be paralysis, and the cause to be worms. The Branch desired advice as to treatment. [The Veterinary replies.— "Feed well, keep warm, raise with slings, and treat with Veterinary Surgeon Desmond's strychnine powders for horses, which can be procured from Messrs. A. M. Bickford & Sons, with printed directions for their use."—Ed.]

Water for Stock.—Mr. Burner claimed that as water was conserved from roads and catchments it was necessary to use something to destroy insects and germs which were injurious to stock. He had used bluestone at 2lbs. to a 20,000gall. tank, and the germs had been entirely destroyed. Mr. Tonkin had also used bluestone with good results. [This is much stronger than is recommended.—Ed.]

Green Patch, May 3rd.

(Average annual rainfall, 26in.)

Present—Messrs. J. Sinclair (chair), Whillas, Halls, Francis, Parker, Tidswell, G. Sinclair, and MacFarlane (Hon. Sec.).

Veterinary Surgeon for West Coast.—Letter was received from the Koppio Branch in regard to proposal to present a petition to the Government asking for the appointment of a veterinary surgeon for the West Coast. Members were opposed to this suggestion, but were prepared to go on with the proposal that the Branches should guarantee the salary of a veterinary.

Sheep on the Farm.—Mr. Geo. Sinclair read a paper on this subject: For this district the best sheep for the foundation of the flock was the pure Merino, as it was the best wool-producer, and would produce a payable type of crossbred. He preferred the longwool—either Lincoln or Leicester—for crossing for this district, giving first choice to the Lincoln. The Shropshire ram was advocated by some as a suitable cross for mutton-production, but if they failed to fatten this crossbred they would prove unprofitable. Considering the special local conditions, he would therefore either keep a longwool cross or the strong-framed pure Merino. To keep sheep profitably the farm should be divided into at least six paddocks, and stock two at a time, as the sheep will not trample and waste so much grass when in two mobs as if all in one mob in a larger paddock. Do not allow the sheep to remain too long in one paddock. As soon as they have eaten the grass down short, shift them. Take care to give the lambing ewes the best feed. In this district they should go in more extensively for growing fodder crops for sheep. For this purpose the paddocks would need to be smaller still, and he would advise a mixture of dwarf Essex rape and white mustard or other crop that will grow quickly in the winter. With care rape will last more than one season; he had some which was five years old. When rape shows signs of going to seed, keep it fed off and run the cultivator between the drill lines. He would also advise sowing kale in rows 2ft. apart, and then thin out the plants so that the cultivator can be worked between them, as thorough working is necessary to success with this crop. It was a great mistake to carry more sheep than the farm will keep well. If the flock consists of 200 ewes there will be, with an 80 per cent. lambing, 160 increase each year. This means that 160 old sheep must be diposed of each season, or, if it is decided to keep only the ewe lambs, there will be 80 ewes and 80 lambs for sale. So long as the sheep were well mouthed he would not confine himself to selling the old ones, but would each year cull out the poorest-framed and worst-woolled sheep. He would sell as soon after shearing as possible, but would do the culling for wool in May, marking them so that they are put aside from the shearing shed. Maiden ewes can be culled in the shed. When the stubble land is open separate the breeding ewes from the young sheep, and let each have part stubble and part grass, with an occasional change to the fodder crop. If the latter should not be all required by the sheep, horses and cows will do well on it. It is a mistake to leave the rape too long, as the aphis or blight will attack it. An interesting discussion followed the paper, most of the members being in accord with the writer, although Mr. Whillas questioned whether it would pay to make small paddocks, fencing being such a costly item. Mr. Parker thought the best subdivision fence, and the cheapest in the long-run, would be made of 2ft. 6in. netting of large mesh, securing it to two wires, one at the top and the other about 4in. from the ground. He would have a barbed wire on top, and advocated low fences, 3ft. 3in. to 3ft. 6in. being high enough. Some members favored five wires with stout posts some distance apart, with two droppers between each post.

Koppio, May 6th.

(Average annual rainfall, 17in.)

Present—Messrs. Price (chair), G. B. and M. Gardiner, G. and M. Howard, Newell, Roberts, and Brennand (Hon. Sec.)

Wattle-growing.—Mr. Roberts read a paper on this subject as follows:—"In view of the high price of wattle-bark, and the growing demand which had never been fully supplied, this was a subject it would pay the farmers of this district to investigate. The district was eminently suited for wattle-growing on the hills that were too steep or rough for cultivation. The most suitable soil for for wattles was a sandy loam with a clay bottom, although they would give splendid results on sandy soil too poor to grow wheat. The broad-leaf wattle of South Australia, also called the golden black or green wattle, was, according to scientific men, the richest tanning bark in the world. There was always a good market for the bark, and Victoria had to import this year from South Africa. Natal bark could be imported at £2 a ton cheaper than the local bark could be produced, owing to colored labor, but the quality of the South Australian bark was such that there would be no importing done, even at £2 a ton lower, if tanners could get enough of the local product. In preparing land for wattles there was no necessity to clear the whole of the native timber. Wattles were a shade-growing tree, and the best grown wattles were those protected by trees of larger growth. The wattle seed was exceedingly hard, and it was necessary to treat it in order to ensure germination. The best and safest way was to pour boiling water over the seed and let it soak over night. By the morning it would have swelled sufficiently to be ready for planting. It was necessary to fence the land securely to keep out sheep and rabbits for a while, but when the trees were of sufficient height (which would be in from three to five years) the sheep might be turned in for a while without any harm being done. When the trees were young they should be thinned to about 6ft. apart. And when about six or seven years old they might be gone through and the best ones barked. Each succeeding year the stripping might be continued until the plantation was exhausted. Then, if well burned in the summer, the first rains would bring up another crop of wattles. It had been calculated that with suitable land a wattle plantation would yield an average of £10 an acre for a period of 10 years." Members commented favorably on the paper and considered this district suitable for wattle-growing, seeing that most farmers had a portion of their land too hilly for wheat-growing, and it was thought that if members would spare the time to plant a few acres each year the bark in a few years would amply repay any expenditure.

Manures.—The Chairman suggested that if the farmers in the district would co-operate in buying manure, they could purchase a large consignment from one firm and secure a lower price. Members were in favor of the suggestion.

Field Trial.—Mr. Newell moved that this Branch, in conjunction with that at Yallunda Flat, hold a field trial of implements in Koppio during the year.

Stinkwort.—Mr. Gardiner reported that he and others had lost a number of sheep through their eating stinkwort after the rain. Members would like to know whether the weed is a stomach poison, and if there is any antidote.—[We have no definite proof that stinkwort causes death of sheep. Though circumstances point that way at times, we cannot overlook the fact that many thousands of sheep pasture in stinkwort-infested paddocks throughout the autumn and early winter without injury.—Ed.]

Miltalie, May 1st.

(Average annual rainfall, 14½in.)

Present—Messrs. Atkinson (chair), G. and J. Story, W. and E. Smith, J. and F. Jacobs, Grund, and Hier (Hon. Sec.), and five visitors.

Fruit-growing.—Mr. J. W. Atkinson read a paper on this subject to the following effect:—"He was of opinion that the hilly country in the Franklin Harbor district was favorable to orchard-growing, there being many rich gullies and flats that could be made to yield a profitable return. In many places the natural springs could be utilised for irrigation purposes, also in other parts large quantities of water could be conserved at little cost. In his own orchard, four-year old fruit trees, which have been watered twice since planting, show excellent growth. As regards vegetables, he was sorry to see the consumer having to pay such a high price for bruised and stale vegetables sent from Adelaide when their own district could grow them equal to any part of the State. When planting fruit trees, select the most suitable spot, sink the holes 3ft. x 3ft. and 3ft. deep, and fill up the holes with good surface soil, using no subsoil or manure of any kind. Plant the tree about 2in. deeper than the nursery ground mark, and mulch about 5ft. around the trunk with old well-rotted farmyard manure, allowing no manure to touch the tree. Plant trees 18ft. apart, and give each tree, at least, 3galls. of water. Plant in the month of May, so that they may have the benefit of the full winter rain. The kinds most suitable for this district are apricots, peaches, nectarines, mulberries, and some kinds of apples, such as Dunn's Seedling, Five Crowns, Cleopatra, and Scarlet Nonpareil, and almost all kinds of grapes. The shy bearers are pears, quinces, damsons, and some kinds of apples, such as Lord Nelson, Prince Bismark, and a few other varieties. Figs are patchy, also almonds. The poor bearers are nearly all kinds of plums, loquats, and cherries. He thought it would be advisable for the farmers to raise young plants of sugar gums and set them out along their fences, in corners, or any other convenient spots on their farms; by so doing they would be beautifying the district and enhancing the value of their farms. Gums grow remarkably well in the hilly country in Franklin Harbor. He had some planted two years ago which were 9ft. in height." Mr. Atkinson also referred to the question of pruning trees, and by means of some branches explained the system he advised. Summer pruning was also referred to. A good discussion followed. Mr. Grund had noticed that peach trees grafted on almonds suffered badly from curl leaf, and wished to know cause and treatment. [Curl leaf is caused by fungus attack, and though some varieties are more susceptible to attack than others, the fact of the trees being grafted on almonds is not likely to have any influence on the prevalence of the disease. The cure is to spray with Bordeaux mixture in the spring when the first sign of color is noticeable in the fruit buds. —Ed.]

Penong, April 10th.

(Average annual rainfall, 12½in.)

Present—Messrs. Bennier (chair), Shipard, Olsen, Edwards, Wold, Brook, Farrelly, Oats (Hon. Sec.), and one visitor.

Collars and Sore Shoulders.—Mr. Shipard initiated a discussion on the question of sore shoulders, and explained how he stuffed collars. His aim was to get the centre of the collar full, and the top or bottom only slightly stuffed, or even left unstuffed. The collar should always fit the horse, and it was a great mistake to have it too large. If a collar was too large, a branbag placed under it would help matters considerably. Stuffing collars with cocky chaff was recommended for a horse suffering with boils or scalds, as this was found to be cooler than horsehair. Shoulders often get scalded on hot days, and, if neglected, developed into unsightly sores. Cold water applied with the hand each time the collar was removed was very beneficial to scalds, and would prevent wrinkled skin from becoming worse. For boils, kerosine should be applied twice a day, as soon as the lump appeared. This treatment would take the heat out and prevent the sore from festering. The collar should be eased to take pressure off the affected part by taking out a little of the stuffing. In the case of a very bad boil, it should be lanced—cutting in the direction in which the hair lies; the cut would then heal quickly. Boils were probably caused by feeding too freely with wheat. Clean wood-ashes mixed with the feed made a good blood cooler. Mr. Brook endorsed the remarks of the previous speaker, and stated that he had found it a good plan to soak a new collar and put it on wet. Mr. Farrelly thought the only remedy for sore shoulders was to ease the collar where it rubbed. Mr. Edwards agreed with Mr. Shipard's views, but thought some horses needed the collars stuffed differently from others on account of the varying shapes of shoulders. A tan made with silver wattle-bark was very effective for sore shoulders. The Chairman was of opinion that cocky chaff was superior to horsehair for stuffing collars. He would try it himself. Mr. Shipard had once soaked a new collar, but it was injured to such an extent that he had not repeated the experiment. On it being put to the vote members declared themselves thoroughly in accord with Mr. Shipard's views.

Penong, May 8th.

(Average annual rainfall, 12½in.)

Present—Messrs. Bennier (chair), Shipard, Saunders, Wold, and Oats (Hon. Sec.).

Horse-breeding.—Mr. Saunders read a paper, which ran as follows:—" Every farmer should endeavor to breed his own horses. The best mares for that purpose should be mated to the best upstanding stallion procurable; one with good bone and muscle, and a good walker. If the mares were from blood or roadster stock it was advisable to breed from a tall stallion, as the result would then be horses suitable for remounts or artillery purposes. If bred to low-set stallions the progeny would probably be small. It was just as cheap to breed a good horse as a bad one, and a good horse would always sell at a good price, whereas an inferior one was hard to get rid of at any price. A great deal depended on how foals were cared for; they should be kept growing from the start, because a neglected foal would never look well, and would require a lot of care. Breeders should themselves castrate their colts, as it could then be done when the weather was suitable; and for this purpose the emasculator was preferable to searing irons, being simpler and safer." In the discussion which followed, Mr. Shipard thought it advisable always to breed from the best animals. It was true that they cost a good deal at the present time, but he thought stock could be much improved by judicious breeding. Upstanding horses were generally the best walkers. The Hon. Sec. thought the low-set animals the best for general farm purposes, as they required less feed and were stronger. The Chairman and Mr. Wold indorsed this view, and the former added that on account of the high price of horses, practically any stamp of animal would pay to breed.

Effect of Time of Seeding on Yield.—The Chairman read an extract from page 727 of the *Journal* (March issue) on this subject. The Hon. Sec. stated that on one occasion where the drill had stopped on a Saturday night, and restarted on the following Monday morning, there was a marked difference in the appearance of the crop. He could not say whether rain had fallen in the interval. Mr. Shipard had noticed quite a difference where sowing had been stopped on a Tuesday evening and resumed on the following morning; and even where operations had been suspended for dinner at mid-day the earlier-sown portions looked better. Rain had fallen in the interval in both cases.

Shannon, May 1st.

Present—Messrs. Neate (chair), W. and H. Glover, T. and C. Carey, Habner, Cronin, Dorward, Proctor, Robins, Kain, J. Cronin (Hon. Sec.), and five visitors.

Experimental Farm.—The Chairman stated that arrangements had been made by the Agricultural Department for the use of 200 acres of fair average land, about four miles from Yeelana Station, as an experimental farm. Operations would be started in time to put some of the land under crop next year.

Seeding.—Mr. Dorward read a paper on this subject. He advised harrowing the land before drilling to loosen the surface and level it, so that the seed is sown at regular depth. Harrowing after the drill was likely to drag the seed away from the manure, which was a great disadvantage. He would drill in the seed to depth of 1½in. to 2in. Sow only pickled seed—for wheat and oats, 1lb. of bluestone to 12bush. and for barley 1lb. to 9bush. was recommended. Three-quarters of a bushel of seed wheat per acre was sufficient as the plants would have room to stool, and would yield as much as if sown thicker. In this district he thought from the 1st of May to latter part of June the best time for seeding. He noticed last year that some of the early sown wheat on sandy land went back a lot in the spring, and the yield was a good deal below expectations. At White's River last year fully a fourth of the crop sown about the middle of May died off when it should have been coming into ear, and the grain from the rest of the crop did not weigh as heavy as it should. He attributed this to the wheat being sown too early for that district. One year he got 10bush. per acre from wheat sown at the end of May, 30bush. from July sown, and 16bush. where the seed was put in about the middle of April. Their district was at least a month earlier than White's River, and he recommended starting about May 1st.

Utera Plains, May 1st.

(Average annual rainfall, 14in.)

Present—Messrs. Venning (chair), R. and T. Hornhardt, Gale, Poullford, Stening, West, Guider, Chase, Stephens, Ramsey, (Hon. Sec.) and six visitors.

Grading Seed Wheat.—Mr. R. J. West read a short paper on this subject. Although they all kept their cleanest wheat for seed he thought most of them who had not used a grader would be surprised at the amount of broken and shrivelled grain that would be taken out of a bag of seed wheat. Carefully used the grader makes almost a perfect sample, taking out the small weed seeds, broken and shrivelled grain, &c., with little trouble. Barley being about the same size as wheat was more difficult to get rid of, but by passing the seed through the grader two or three times most of it will be taken out. By grading the seed they obtained a uniform sample, which was likely to germinate and ripen more evenly than a mixed sample, while the small grains and seeds, which were wasted if sown, were available for feed purposes. With a little extra blast the smut balls can be blown out the back of the machine. In his opinion the grader would pay for itself in a few seasons. Members had had no experience with the grader, but agreed that it would be of considerable value.

EASTERN DISTRICT.

(EAST OF MOUNT LOFTY RANGES.)

Lameroo, May 8th.

(Average annual rainfall, 16in.)

Present—Messrs. F. Eime (chair), Shannon, Dunstone, Edwards, C. Eime, Wray, Jeffrey, Thyer, W. J., and S. G. Trowbridge, Dodds, R. B., and A. J. Koch (Hon. Sec.), and four visitors.

Bureau Papers.—Paper read at Cherry Gardens Branch on "Bacon-curing" was read and discussed. Also paper on "Bureau Work and Aims," by Mr. E. P. Smith, of Miltalie, with which members generally were in accord.

Pickling Seed Wheat.—Discussion on this subject took place. Most members favored pickling in a cask or tub in preference to pickling on the floor, as in their opinion it was simple, easy, and less injurious to the seed. Mr. Eime tried formalin last year and found it cheaper, easier, and quite as satisfactory as bluestone pickle. Care must, however, be taken that the pickle is not too strong. Mr. Wray added a handful of common salt to the bluestone pickle, and considered it useful.

Stock Complaint.—Mr. R. B. Koch reported that some of his foals were affected by a slight swelling under the jaws, but he could see nothing to cause this. Members thought the swelling would disappear, attributing it to the animals cropping the short grass and to the cold weather.

Sherlock, May 1st.

(Average annual rainfall, 15in.)

Present—Messrs. Wood (chair), Osborn, Stringer, Arbon, Whyatt, Slater, Hart, Coombe (Hon. Sec.), and 10 visitors.

Manure for Wheat.—Mr. Arbon gave a short paper dealing with the quantities that yielded the best returns, as follows :—" For early sowing put in a bushel of wheat and 50lbs. manure to the acre, and for late sowing a bushel and a quarter of seed and 75lbs. of manure. It paid to sow a fair quantity of wheat to ensure a stubble burn after harvest, as this would kill mallee shoots and ultimately the stumps. For hay, cross drill three-quarters of a bushel of seed and 50lbs. of super each way." An enthusiastic discussion followed. The majority of members thought ¾bush. of seed to the acre was sufficient for grain crops, while for hay they advocated putting in a bushel to the acre. With thin sowing the plants had a better chance to stool out, securing equally good results with less cost of production. Members agreed with the quantity of manure advocated in the paper under discussion. The Hon. Sec. tried numerous experiments with different quantities of manure last year, with the result that no difference in yield was noticeable when more than 60lbs. to the acre was applied, but with a lower dressing than that a poor and unprofitable plant was produced. [Were the plots reaped separately ? The cost of an extra 28lbs. of manure would not exceed 1s. 2d. per acre, equal to the value of 20lbs. of wheat. We submit that no farmer can accurately judge the results from experiments of this sort without reaping the plots separately.—Ed.]

Sutherlands, May 12th.

(Average annual rainfall, 9in.)

Present—Messrs. Heinrich (chair), Badge, Twartz, Byrne, Snell, Noack, Johnson, and Dart (Hon. Sec.).

Breeds of Cattle.—This subject was introduced by the Hon. Sec., who read a paper touching upon the characteristics of the various breeds. Reference was made to Shorthorns, and the prize stock bred by the late Mr. J. H. Angas was mentioned under this head. The Devon and Hereford breeds were praised as beef producers, while it was stated that Yorkshires were considered by London dairymen to be good milk producers. Alderney, Jersey, and Guernsey cattle were discussed at length, and favorably commented upon as good animals for the dairy. The Brittany breed was praised for its hardiness. The Sussex, Suffolk, Lancashire, Scotch, Welsh, and Irish breeds were also dealt with, special mention being made of the Ayrshire's suitability for the dairyman.

SOUTH AND HILLS DISTRICT.

Cherry Gardens, May 4th.

(Average annual rainfall, 33in.)

Present—Messrs. A. Jacobs (chair), C. and J. Lewis, T. Jacobs, C. and I. Ricks, Brumby, Stone, Hicks, Curnow (Hon. Sec.), and two visitors.

Tree-planting.—Permission having been granted by the district council, it was decided that the work of planting oaks and elms along the principal roads in the district should be proceeded with by the Branch.

Poultry.—A short discussion on this subject took place. Mr. Ricks would not advocate the breeding of fowls in this district for egg production only. He thought that as an all-round bird for the hills the Silver Wyandotte was the best. They were robust and hardy, good layers, and nice table birds. He was feeding his fowls on English barley, of which he tabled a sample, and thought that with wheat at 5s. it was better to use barley. He was using the Government poultry meal with good results, but where they could get rabbits it was cheaper and more satisfactory to boil these for the fowls. Mr. T. Jacobs agreed that the Silver Wyandotte was the best utility bird for this district. His laid well right through the year, and though the eggs were admittedly small, that could not be considered a fault so long as buyers paid by the dozen irrespective of size. His fowls did well when boiled rabbit was included in the ration. He did not consider barley too heating even in the summer; he fed peas, which were more heating, to his fowls with good results.

Clarendon, May 3rd.

(Average annual rainfall, 33½in.)

Present—Messrs. H. Harper (chair), White, A., E., and T. Harper, Burpee, Dunmill, Hilton, Wright, Spencer, Morphett, Reece, Tester, Piggott, E. and A. Sheidow, Phelps (Hon. Sec.), and one visitor.

Harrowing after Drilling.—Mr. A. Harper reported that a field trial of the Cocktail twin harrow had been made at his farm. Several members who were present expressed satisfaction with the work of these harrows, which could be fitted to the hoe or disc drill, thus obviating the necessity for a team to follow the drill.

Mangolds.—A specimen of this plant, weighing about 40lbs., was tabled by Mr. A. Harper. The plant had been 10 months in the ground, and was grown without manure. Other members had sown mangolds, but the results were very poor last year. They thought May or June the best time to sow the seed.

Farm Economy.—This subject was introduced in a paper by Mr. Wright, to the following effect:—"On many farms in different parts of the State, where the owners have been living for 25 years or more, one will perhaps not find a gate on the whole property, but very badly constructed panels instead, or even, for a makeshift, some brush or an old machine put in the opening. I suppose two of these have to be opened every day. By the time the barrier is cleared away and put back into its place five minutes have been lost each time at the least, or 10 minutes a day, not considering wear and tear of hands, clothes, and temper. This 10 minutes a day will make seven and a half days a year, which, at 6s. per day, equals £2 5s.—or quite sufficient to put up two good strong gates which could be opened and shut in a few seconds. Such gates, given a coat of coal tar once a year, would last a lifetime, and be an improvement to the appearance of the farm. A good deal of time is wasted, also, in working with worn-out tools. When an axe is worn down thick, a spade or a shovel worn small, or when any tool gets past a certain point it is almost useless. It would pay either to send it to a sale or throw it away. In sinking post holes a man with good tools will put down one-quarter more holes than a man with old ones. In a mile of fencing that would be a difference of five days at 6s., making £1 10s. That sum would purchase a new lot of bars, spades, &c., which would be much better to work with. For taking down an old wire fence an old tomahawk, ground to a good thick edge, is one of the best tools that can be had. With the tomahawk in one hand and something solid in the other a man can chop out all the knots almost as quickly as he can walk. I have seen people using an old rusty file, taking some minutes to cut a wire. It would pay such to buy a new tomahawk, if they had not an old one, for the purpose. Another great saving on the farm is a liberal use of paint—not only on the implements made of wood, but on the house and other buildings. In addition to preserving all woodwork, it would much improve the general appearance of the place. The best way to get paint is to buy white lead, boiled oil, &c., and mix it as required—color as desired. All machinery should be in good working order before seeding or harvest, particularly the binder. Last season I lost a week because the binder was not in good order just at the time the crop was ready for cutting." Members agreed generally with the views expressed by Mr. Wright. They emphasized the advantage of having gates and the most up-to-date machinery. Necessity for care of the latter when not in use was realised by all.

Gumeracha, April 5th.

(Average annual rainfall, 33in.)

Present—Messrs. Randell (chair), Monfries, Cornish, Kitto, Porter, Stephens, Moore, F. W. and F. V. Lee (Hon. Sec.).

Hon. Secretary.—Mr. W. A. Lee tendered his resignation as Hon. Sec., and Mr. F. V. Lee was appointed in his place.

Care and Management of Farm Implements.—Mr. B. Cornish read a paper on this subject to the following effect:—"It is a well-worn proverb that 'A penny saved is a penny earned,' but I do not think that we always fully appreciate that fact in relation to the care of our farm implements, &c. In this country the cost of implements, vehicles, and machinery is very heavy, especially in regard to repairs and duplicate parts, the cost of such being usually about double the price for the same proportion when new. Thus it is of the greatest importance that we take every care of those we have, and it is surprising how the life of an article may be lengthened and its efficiency improved by care and good treatment. The Australian climate, and especially here in the hills, is particularly trying to all our vehicles. The heavy rainfall, followed in summer by a hot sun, plays havoc with the woodwork. To this end, then, the first thing to do is to provide a good shelter for vehicles and machines. Where timber is so plentiful shelter is easily provided. All sheds for this purpose should, where possible, face the south, as in any other position they are open to the bad weather. A shed facing east or west is poor protection unless closed in completely, as the rays of the sun and, in many cases, the rain beat in on the vehicle. If the sun is allowed to pour in on the wheels up to 10 o'clock or 11 o'clock, it would be better for the time being if that vehicle were out of the shed, as the rays of the sun would be tempered by the breeze. The life of a vehicle is the life of its wheels, usually, and it is of the utmost importance that they should be well looked after. The cool breezes of the summer from the south playing on the vehicle in the shed will do a great deal more than is generally supposed towards preventing those wheels from shrinking. Then when in use we can do a lot by not allowing it to stand any more than is absolutely necessary unsheltered. Either rain or sun will do much more harm when the machine or vehicle is stationary than when moving. It will be found that it pays to spend a minute or two at dinner hour or other time to draw it into shelter for the time being. Most farms have a shady tree not far away which will answer. When the paint begins to dry up, and cracks, however small, appear in the wood, it must be painted again. In the case of a buggy, it is as well to send it to the painter, or we spoil the vehicle. With heavier vehicles, if short of money, we can paint them ourselves. Any way it must be done, and if we are careful, with a little practice we can make a fair job. The article must first be well cleaned of grease and dirt, and while doing this you will be surprised to find what a lot of nuts, if not bolts, are lost or loose. This work should be done in the summer while the wood is dry; the nuts, &c., must be replaced, and every loose nut screwed up. There is nothing worse for a vehicle or machine than to run with loose nuts; it is often the sole cause of splintered and broken woodwork. Every vehicle should be attended to in this respect at least once every summer, as it will carry a load with ease when tight that will break it down when loose. When applying the paint, put it on thin at first, to fill the cracks of the wood. To do this, thin the paint with raw linseed oil. If the wood is very hungry, the first coat will scarcely be seen, but it has gone into the wood; that is where you want it. The blotchy, dauby appearance of amateurs' first painting is nearly always caused by the paint being too thick. Apart from its bad appearance, thick paint will soon peal off. In screwing up the loose nuts, if the vehicle is attended to each year, no difficulty will occur, but if it has been long neglected many of the bolts will turn in the wood, and you have trouble. The best thing then is a little kerosine, and a good bit of patience. If the bolt is very rusty a cold chisel will, if applied with force full on the edge of the nut with a heavy bar held against the nut by an assistant, do good in loosening the nut. With most implements and machinery there is not so much wood about them now. The wheels are mostly made of iron or steel, and as they are in many cases used only a few weeks in the year, there is not quite the same need of paint. Still they should not be allowed to suffer in this respect. They must, however, be well provided with shelter, as in some instances they remain many months without being moved. Before any implement goes to the field at the start of a season it should be thoroughly overhauled, repaired where necessary, and above all made snug and tight. If it be a complicated machine, such as a harvester or twine binder, this last is of the greatest importance; indeed, with any machine or implement that has to work over rough land it is of much more importance than any other thing. Here, indeed, is the secret of the failure of many people with harvest machinery—looseness. A vehicle has to contend with concussion from the road, and friction there causes nuts to work off. A harvest machine travelling over rough ground has the same, and a much greater friction to contend with as well, viz., the friction of its own ceaseless machinery. No one who has sat on a binder for a day in a heavy crop will wonder if this agitation does cause nuts to work off. With the nut off the bolt soon goes, or is at least not much use, and often the result is breakage. In any case a bad working of parts ensues, and the driver wonders what is the matter, blaming the maker when the fault is really his own. Machinery that is drawn over the land needs to be as light as can be consistent with proper strength. This the maker has provided for, and the machine must not be run with one bolt less nor one of less size than he has provided. Comparatively few men can work complicated machinery in rough country quite successfully. I may be challenged, but I make the assertion confidently, based on my own experience. The trouble is usually just want of attention in keeping everything properly tight. About 90 per cent. of breakages are caused directly or indirectly by loose bolts or general looseness of the parts. The remedy is this, let every farmer keep by him a small supply of a few each of all sizes of bolt and nuts likely to be required ; they are easily obtained and cheap. Let him be on the alert for every loose nut, and make it tight ; if a bolt goes put in at once another of the same size, no smaller one will do. If nuts will persist in coming loose they may be stopped by various means, one of which is to drive the thread into the nut by means of a cold chisel; another and better, if the bolt will allow of it, is two nuts, A real good maker stops the nuts on the principal bolts by a hole and cotter-pin. All vehicles and machines should be well greased or oiled, as the case may require, yet this is often neglected in a large measure. For harvest machines in hot weather avoid thin oils, they are not satisfactory for wear. An oil with some body in it is required, or it is is soon lost. Axles of vehicles should be attended to often. Many people buy their axle grease, but I have used for 25 years a grease made of clean mutton fat and castor oil with great satisfaction. Last year I added some graphite, which, from the limited trial, seems to be a decided advantage. In oiling a machine, see that the oil is getting into the bearing." The paper was well discussed, and members generally complimented Mr. Cornish on the valuable advice contained therein. Mr. Moore said even the simplest of their implements required attention. Trouble with machinery was more often due to carelessness on the part of the owner. A little mechanical knowledge was of great advantage to the farmer. Mr. J. B. Randell advised when putting implements, &c., away after the season's work is finished that the nuts should be loosened, the bolts greased, and then screwed up. Linseed oil rubbed into the handles of picks, grubbers, forks, &c., will preserve and strengthen them. Mr. Cornish did not agree with the loosening and greasing of bolts as suggested ; it was sufficient to just give a turn with the wrench. He would advise building one large shed instead of several small ones.

Kanmantoo, April 30th.

(Average annual rainfall, 17in.)

Present—Messrs. J. Downing (chair), W. Downing, Hair, P. and W. Lewis, Mills, Lehmann (Hon. Sec.), and two visitors.

Rotation of Crops.—The Chairman initiated a discussion on this subject, during which Mr. Lewis stated that in the hills nearer Adelaide rotation was carried on by first planting peas and then following with a crop of wheat. Some farmers used manure with both peas and wheat, and some only with the peas. This locality was rather dry for pea-growing, but in a favorable season as much as 20bush. per acre might be grown. Ewes and lambs would do well on a pea haulm stack, but pigs gave the best result. They should not be fed too long on peas alone, and plenty of charcoal should be thrown into the sty. Mr. Mills recommended sowing maize at about 4bush. of seed to 20 or 30 acres of fallow land. He would sow at the time when the apple tree was in bloom.

Morphett Vale, April 20th.

(Average annual rainfall, 22½in.)

Present—Messrs. Pocock (chair), Rosenberg, Sprigg, Jones, O'Sullivan, Perry, and Anderson (Hon. Sec.).

Congress.—Members were in favor of opening meeting being on Monday evening in September Show week.

Manures.—Mr. Sprigg considered that if farmers combined to purchase large quantities of manures they would be able to procure them at a lower price. As the outcome of a discussion as to suitability of various manures, it was considered that while superphosphate was necessary to secure good crops in this district, the addition of nitrogen and potash was not needful at present.

Cross Drilling.—Members expressed the opinion that the extra trouble entailed in cross drilling was more than paid for by the results. In addition to securing a better crop, cutting for hay did not hurt the binder so much as where the seed had only been drilled in one way.

Morphett Vale, May 18th.

(Average annual rainfall, 22½in.)

Present—Messrs. Pocock (chair), Rosenberg, Perry, Hutchinson, O'Sullivan, and Anderson (Hon. Sec.).

Mangolds—Mr. Hutchinson wished to know the best time to plant mangolds. Mr. Pocock advised drilling in seed with an ordinary seed drill in August, only slightly covering the seed. Mr. Rosenberg had found mangolds grown without transplanting to be much the best. He had grown them 18in. in diameter.

Slugs.—Mineral super. lightly broadcasted in the evening or early morning had been found by Mr. Hutchinson to be more destructive to slugs than anything else.

Potatoes.—Members considered that ground for potatoes should be prepared now for planting in June. The New Zealand Pink Eye was recommended for this district.

Mount Pleasant, May 14th.

(Average annual rainfall, 27in.)

Present—Messrs. Giles (chair), Miller, Tapscott, Hughes, and Vigar (Hon. Sec.).

Foxes.—The chairman referred to the increasing losses due to the depredations of foxes. In this district losses were serious, and lambs had been killed in paddocks quite close to the township. Considerable discussion followed, and it was resolved that in the opinion of this Branch the time had arrived when concerted action should be taken by Branches of the Bureau to induce the Government to offer, through the district councils, a uniform bonus for fox scalps.

Breeding of Dairy Cattle.—Mr. H. Hughes read a paper on this subject to the following effect :—The essentials to success in dairying are, roughly, rich milk and plenty of it, and the problem is how is this to be obtained and maintained on a profitable basis. Probably because it is a most difficult problem, entailing a great deal of study and continual observation, it is to be feared it usually gets practically no study at all, and that the breeding, especially, is simply left to chance. We may take it that in any business not more than one man in 50 becomes an expert, and he only arrives and remains there by constant study and practice. This applies to farming and dairying as much as to any other business. Probably because no immediate visible loss is experienced, and nobody has the right to censure him, the farmer or dairyman generally likes to be a law unto himself, wrongly imagining that if a mating of stock turns out a failure he only is the loser, whereas the State, as well as himself, is the poorer by the substitution of a poor strain for a good one. Nearly every owner of dairy cattle will admit that while he has had an occasional extra good cow he has taken no especial pains to trace its pedigree or to perpetuate the strain, with the result that its progeny have been only medium or worse. There must be method year in and year out in the breeding of our stock. Every animal on the farm should have its pedigree and performances set out in black and white : the successful lines to be followed, the unsuccessful ones to be carefully noted and avoided. Some students of horse-breeding draw what they call the " red " line, and they will not look at any horse, no matter what its appearance may be, if its pedigree is not satisfactory.

In principle, this is correct. As I have said, not more than one man in 50 is an expert, and it follows, as a general rule, that the remaining 49 would do better to rely on the expert and the experience of others. as set out in standard works and by leading writers of the day, rather than laboriously and at large indirect loss prove for themselves what has been proved since ever stock-breeding began, viz., that haphazard breeding results, except in rare instances, in failure. The " red " line of the dairyman should be decided by the scales and the Babcock tester. This red line should be raised a little every year, and any cow—no matter how taking in appearance—which failed to come up to the standard should go to the butcher. Sentiment should have no place in selection of stock. As poultry-raisers have by discarding almost everything else for " results " improved the production of eggs by 100 per cent., so by unremitting attention can the yield of our dairy herds be increased. *The Australasian* recently referred to the fact that while Victoria, like the other Australian States, possessed one of the best climates and the richest native pastures, the average production of her dairy cows was but a little over 300galls. per annum, whereas in Denmark the average was 700galls. If the dairymen in Denmark, in spite of the long cold winter necessitating the housing and hand-feeding of his cows for so many months, could produce 700galls. per cow, why did Victoria, with her many advantages, fail in this respect ? It was all a matter of breeding. The Danes study, select, and breed to a high standard, whereas in Victoria there was an absence of that completeness of method which had characterised the Danes for generations. What Denmark has done we can do ; but it will require strict attention to business. Probably the first error made is in starting with chance stock. Still, by breeding from the best only, using a selected bull of a milking strain, improvement is bound to follow. Possibly the rock on which most dairymen come to grief is their fear of inbreeding ; and although experience and scientific breeders are against them yet they avoid it as they would the plague. All champion studs—whether horses, cattle, or sheep—are largely inbred, and there is no other means of fixing and perpetuating special characteristics. Every dairyman can make a start to build up a stud. Let us suppose that he has two or three cows in his herd superior as milkers to all the rest. He should put them as near the same time as possible to the very best milking-strain bull available, even if he has to take them a long distance ; better still to buy an approved bull, if he can afford it. The heifers should go back to the father, and the best bull calf can be saved and put back to the mother. The progeny of this second mating will be on one side three-quarter blood of the bull and on the other side three-quarter blood of the cow. These two can be mated, and their progeny becomes half and half again, and can be mated back to the originals without any great danger, and so on indefinitely. The great thing to keep in mind is that the successive animals must be carefully mated back to their own side of the house, so to speak. If this " line " breeding is followed carefully, provided that the original pair were quite unrelated, it is possible to go on without bringing in fresh blood ; but if any constitutional weakness appears, and fresh blood is thought advisable, then only something of a strain allied to one of the original pair should be introduced. Many experts prefer to bring in a female in preference, so that the results, if a failure, may be kept within smaller bounds. It is the point where expert advice is required, and where the value of records is proved. If full notes were made of the pedigrees and surroundings of the original pair the task becomes easier and infinitely surer. The best method of keeping notes is by diagram or chart, with sufficient space and margin for notes of each animal as it comes along and how it proves itself. It does not follow that even if the original pair are both of approved milking strains that they will necessarily " nick " so as to produce something equal to or better than themselves. That is why I have suggested that several of the best milkers should be mated about the same time, so that the progeny coming on together may be fairly compared and the best only bred from ; but it is safer and also more economical—especially of time—to start by procuring a few good animals bred on approved lines from a source from which you can replenish your stock from time to time, because side by side with this stock you can conduct experiments for making distinct strains in your own herd. A plan that would probably suit local conditions has been adopted in some parts of America. This is a co-operative association for the improvement of dairy stock. The owners of 40 cows or more agree to abide for at least six years by certain rules which are drawn up. The association is then divided into three sections, and the members of each select a pure-bred bull of an approved dairy strain for use in their herds. For the first two years the three bulls are used without any change, but in the third year the bull held by No. 1 section is taken by No. 2, and so on. In this way the herds of all the members have the use for six years of three good bulls at far less expense than otherwise, and the result cannot fail to be a success. If some such system were adopted it would in 10 years' time have worked untold benefits. The feeding and care of their cattle is, of course, of vital importance ; but they must breed for improvement.

Uraidla and Summertown, May 3rd.

(Average annual rainfall, 42½in.)

Present—Messrs. R. Cobbledick (chair), Harfield, Kessell, Richardson, F. Cobbledick, Collins, Cutting, Day, Hawke, Gore, Johnson, Rowe, Willsmore, Hart, and Snell (Hon. Sec.)

Apple-growing.—Mr. Willsmore initiated a discussion on this subject. It was necessary for the intending planter to make careful selection of the varieties to plant, as they had to consider not what would sell when fruit was scarce, but varieties which will be in demand when apples were plentiful. Of early apples Williams' Favorite was one of the best; it was very showy, and would carry fairly well. On young trees the fruit may be "fluffy," but this defect is remedied when the tree is older. He thought the Quarrenden would pay to grow for export to the East, but not for local sale at 1s. per bushel. Worcester Permain was a good variety, and if gathered as they mature, the season will extend over a fair period. The Cellini hangs well, is of good quality, and carries well. Gravenstein is a solid showy apple of good quality, but it falls badly. A new variety in England's Glory is fit to gather a fortnight before Jonathan, and will carry to London. The Cleopatra should be planted in high ground; in this district it was a consistent cropper and a variety that always sold well. Rome Beauty was a good late variety. Different varieties of cooking apples were referred to, and mention made of the fact that Dunn's Seedlings cracked badly round the stem. It was useless growing varieties that would only fetch 1s. to 1s. 6d. per bushel, when other varieties that will realise 5s. can be produced. Mr. Willsmore said that with a variety to come in just after Williams' Favorite he would have a succession right through the season. Mr. Richardson recommended the Jonathan for low ground, as it stood any amount of water and manure.

Honey and Arsenic for Codlin Moth.—Attention was called to statement in Wirrabara report that honey and arsenic put on the butts of the trees was a cure for Codlin Moth. Members wanted to know quantities to use, and whether the department recommended this method. [Mr. Lawson has been asked for particulars. The officers of the department cannot see in what way this can have any effect on the moth, and are inclined to attribute any freedom from Codlin Moth to some other cause.—Ed.]

Woodside, May 18th.

(Average annual rainfall, 31in.)

Present—Messrs. Caldwell (chair), Fowler, H. and W. Rollbusch, Keddie, Moore, Morcom, Sampson, Johnston, and Hughes (Hon. Sec.).

Apple Crop.—A short discussion took place on the present year's crop. Mr. Moore thought that, while the codlin moth could be kept down by spraying, the bitter pit was going to be a worse plague. Mr. W. Rollbusch thought a cause of bitter pit was that the apple trees were grafted on to the Northern Spy stock, and urged the matter should be inquired into.

Kale.—Mr. Keddie since the first rains had taken a large quantity of feed off a small plot of thousand-headed kale. He was surprised that farmers did not grow more of this for stock.

SOUTH-EAST DISTRICT.

Millicent, May 18th.

(Average annual rainfall, 28½in.)

Present—Messrs. Stewart (chair), Bird, Oberlander, Harris, Mullins, Holzgrefe, and Thompson (Hon. Sec.).

Wheat-growing.—Mr. Holzgrefe referred to the wheat-producing capabilities of the district, and thought more attention could profitable be given to this cereal. Last season one firm alone purchased in Millicent wheat to the value of £6,000. He also thought they could grow more barley. Mr. Harris thought fair profit could be obtained from the growing of peas in conjunction with pig-breeding. In reply to a question, Mr.

Holzgrefe said that when cows were fed on green rye the percentage of butter fat in the milk was reduced. Dealing with the relative effect of crops of wheat, barley, and rye on the soil, members generally thought that rye was the most exhaustive, and barley next.

Potatoes under Straw.—Mr. Stewart read a newspaper cutting describing the high returns obtained in New South Wales from an alleged new method of growing potatoes. The soil was ploughed and harrowed, the seed just pressed slightly into the soil and covered with a foot of straw. It was thought this method would be very suitable for dry areas, and also that it had never previously been tested in Australia. [The old saying that " there is nothing new under the sun " would certainly apply to this alleged " new " method of growing potatoes. We do not know just how old it is, but nearly 20 years ago reference was made in the *Agricultural Bureau Journal* to a crop of potatoes being grown under straw at the late Mr. G. Fowler's farm, near Glen Osmond.—Ed.]

Mount Gambier, May 8th

(Average annual rainfall, 31½in.)

Present—Messrs. Sassanowsky (chair), Ruwoldt, Holloway, Niquet, Smith, G. Collins, Cobbledick, Englebrecht, Major, Kilsby, Edwards, Sutton, Bodey, Dow, Innes, and Collins (Hon. Sec.), and Professor Angus.

Potato-growing.—Professor Angus gave a conversational address on this subject. He referred first to the importance of good cultivation. With no crop that they grew was cultivation of more importance than with potatoes. Thorough and deep cultivation was practised in Great Britain, where very large quantities of potatoes were produced. Every care was taken to clean the land of weeds, and in the Mid-Lothian districts the farmer calculated to spend £8 an acre in preparing his land and putting in seed and manure. In the hills districts near Adelaide great attention was given to cultivation, and heavy crops were grown. It was a question whether the South-Eastern farmers could put as much labor into their potato crop. Manuring was the exception and not the rule in Mount Gambier district, results from manures not having been satisfactory. He thought this might be due to the manures being insufficiently soluble. Unless the manures were very soluble they might be in the ground during the spring and summer without the plant being able to use them. In England they used 14cwt. to 15cwt. of fertilisers per acre ; they also used farmyard manure very largely where it was available—from 10 tons to 20 tons per acre. The manure was handled in heaps for several months to allow it to mellow down before being used. He was anxious to arrange for experiments with different kinds of manures, different methods of cultivation, and different varieties of potatoes. Dealing with the question of seed potatoes, he fully agreed that it was advantageous to secure fresh seed occasionally—every four or five years. With new varieties of potatoes from abroad it might be several years before they were properly acclimatised, and they should not therefore be condemned because of one failure. Mr. Edwards thought part of their failure was due to insufficient cultivation. In regard to seed he was certain it would pay them to follow the practice adopted by Mr. Williams when at Moorak. He used to pick the best seed from the best plants, and called these " stud " seed ; from these he used to grow the seed for the main crop. Mr. Smith considered the best time to select seed was when digging the crop. Mr. Ruwoldt agreed, and said whenever they found a good " stock " they should put aside the seed. Arrangements were made with different members to carry out experiments during the coming season.

Penola, April 17th.

(Average annual rainfall, 26½in.)

Present—Messrs. Williams (chair), Ricketts, Darwent, Miller, Peake, Robinson, Warner, Adamson, Strong, McKay (Hon. Sec.), and one visitor.

Smut.—A discussion took place on report of the Victorian Vegetable Pathologist recommending pickling seed wheat in a 2 per cent. solution of bluestone, viz., 1lb. of bluestone dissolved in 5galls. of water. He recommended that the seed be placed in a light sack and then immersed in the pickle, shaking and stirring the grain until the smut balls and chaff float to the surface, whence they can be removed. Messrs. Robertson and Ricketts considered a 2 per cent. solution too strong ; 1lb. to 8galls. was sufficient, and they preferred to pickle on the barn floor, turning the grain well until all are wetted. Mr. Kentish would use ½lb. bluestone dissolved in 4galls. of water and dip the seed, taking the precaution to skim off any smut balls. Care should be taken to use clean bags when rebagging, or to dip the bags in the pickle to kill any spores. Members wished to know whether the 2 per cent. solution was too strong a pickle. [Professor Lowrie advocated a 1 per cent. solution, *i.e.*, 1lb. bluestone to 10galls. of water, if the seed showed no sign of smut, and up to 1½lbs. to 10galls. if the seed is anyway dirty. The 1 per cent. to 1½ per cent. solution has been found effective, and is therefore to be recommended in preference to a stronger solution. Thorough pickling is one of the chief points to be observed.—Ed.]

Wheat-growing.—Mr. Adamson read a paper on this subject as follows:—" In this portion of the State the methods in vogue in the districts north of Adelaide in the cultivation of wheat have been carried out with an exactitude which has not been necessary for the attainment of similar yields. Here, until recently, wheat was not extensively grown and was not considered very profitable owing to the old-fashioned methods of cultivation, and what is now proving to be some of the most suitable land for this cereal was at one time considered to be of little value for other than grazing purposes. Wheat can be grown on practically all soils fit for cultivation, from those of a sandy nature to the rich black loam such as comprises the greater part of the land on the western side of the railway line; but it is only to be expected that the yields should vary in accordance with the class of soil. As a general rule he preferred a reddish loam overlying a clay subsoil. The practice in the North is to fallow during the winter of the preceding year, and to work it down into a fine state of tilth, followed up at intervals by cultivations on the appearance of weeds, and to preserve the moisture. This thorough working of the land for nearly twelve months is to a large extent unnecessary in this favored spot, although in a few years' time, owing to the careless introduction of various weeds, a system of fallowing may be compulsory. From personal observation the best system appears to be the breaking up of stubble land on the completion of harvesting operations, and the scarifying of the land before seeding. Early ploughing entails more expense, as with late ploughing scarifying is not necessary, but the resultant crop fully justifies the extra expenditure, as the sun will be found to have a very sweetening effect on the soil, and the stubble land breaks up more easily and much better than when ploughed in a wet state. Land for wheat requires to be in a finer state of tilth than for the other cereals. As regards depth of ploughing, where the soil is fairly deep it is perfectly safe and in fact advisable to plough to a depth of from 4in. to 5in. The plough should be followed by the harrows to level the surface, thus facilitating future working and giving weeds, &c., a better chance to make growth. The land may then be left till after the early rains, which should start the rubbish. When the weeds have made their appearance and shown sufficient growth, the cultivator should be brought into use and the land thoroughly worked with this implement. This operation followed by a light harrowing should leave the land in a good condition for the reception of the seed. If time permits an extra working of the land, the use of the disc harrows will have the effect of producing a much finer seed bed. Experience has shown that in all parts of this State an early seeding results in the finest crops; in their case May seems to be the most suitable month for the sowing of wheat, as the plant has a chance to make a little growth, and thereby enable it to withstand the colder months. For early sowing, 1bush. of well-graded seed should prove ample; this to be drilled in with from ½cwt. to 1cwt. of superphosphate, according to the class of land. For later sowing it may be necessary to increase this quantity of seed by about one-quarter, as the plant will not have the same opportunity of stooling as in the case of early sowing. A practice that has of late been much favored on the Lower North is that of drilling the manure on the fallow during the summer months, and applying the seed with a broadcast seedsower. The seed is buried with a cultivator, which at the same time destroys the growth of weeds, &c., which make their appearance after the first rains. The seed should be drilled in to a depth of about 2in., and the land then given a light harrowing to insure a complete covering of the seed. Among the varieties of wheat most favored in this district are Marshall's No. 3, Gluyas, Purple Straw; small quantities of Silver King and White Tuscan have been successfully grown. Two wheats that are rapidly gaining in popularity throughout the South-East are Federation and Yandilla King, which he believed would eventually prove to be the ideal wheats for this climate. As a wheat suitable for either hay or grain, of those enumerated Marshall's No. 3 or Silver King were the best; Gluyas has the drawback of being unable to withstand the rough weather sometimes experienced here when the grain is ripening. As a yielder of grain on all classes of soil, Federation appears to merit first place, but is of little value as a hay wheat. Sometimes, owing to a very rapid growth of the plant, it may be found desirable to graze the crop; but great caution should be exercised in this operation, as a complete failure may be the result of injudicious feeding off. Sheep should only be put on to the crop during a spell of dry weather, as they will be found to have a very harmful effect if the land is in a wet and boggy state; also undergrowth in the shape of weeds should be watched, and if this appears in any quantity, the effect of feeding off may be that it will make such headway that it will eventually choke the crop. The crop should never be grazed after it has exceeded the height of about 9in., and a sufficient number of sheep should be put on to complete this operation rapidly, and to effect an even cropping they should not be allowed to feed in large numbers on one spot but be kept slowly moving across the field. As wheat for the past few years has been commanding high prices, and is likely to maintain its price for some time to come, the thorough methods of cultivation advocated in this paper will be found to amply repay the farmer.

Penola, May 8th.

(Average annual rainfall, 26½in.)

Present—Messrs. Williams (chair), H. and J. Darwent, Ricketts, Miller, Wilson, Adamson, Peake, Richardson, McKay (Hon. Sec.), and three visitors.

Sheep on the Farm.—Mr. Williams read a paper on this subject: Much has been written on this subject, the views of the writers being largely dependent upon the class of country they held. For heath and scrub country he favored the pure Merino, as they appear to adapt themselves to it better than other breeds; being light and active, they are good travellers both to feed and water. He would not recommend breeding sheep on this country. Merinos, being naturally timid, do better in large paddocks, and heath country was unsuitable for small paddocks. They should choose plain-bodied Merinos of robust type. For light grass land a Comeback or Lincoln-Merino crossbred will show to advantage. The former, if bred carefully on a definite system, were very valuable. As breeders they were hardier than the Merino, and cut a good fleece of wool, for which there was a steady demand. The ewes were splendid mothers, and were keenly sought after by holders of fattening country. It was true that the Merino-Lincoln first cross would produce all that he claimed for the Comeback, but then it was too costly to procure pure Lincoln ewes for breeding, while, if the Lincoln ram is mated to Merino ewes, there were too many losses at lambing. Besides this, with either of these the wool would be too mixed, whereas by breeding to the Comeback type by using only selected Comeback rams and ewes, as was done by several large breeders, this was not the case. The holders of rich land cannot do better than buy annually crossbred ewes, mate them to a long wool ram, and sell off both ewes and lambs as fats. He preferred to mate the Lincoln ram to crossbred or Comeback ewes, as in the event of a bad season not permitting of the lambs being sold as fats, they will produce a profitable type of wool. The English Leicester ram was preferable for mating with the pure Merino ewes, as it was not so heavy in the shoulders as the Lincoln, and losses at lambing would be less. At the same time it did not cut such a good fleece. He would only recommend the Shropshire cross when they were certain of being able to get all their lambs away as fats, as they were poor wool producers. For wet and "fluky" land the Romney Marsh was very popular in some parts, the sheep being hardy and practically immune to "fluke." As much importance should be attached to feeding as to breeding. It was no use thinking of rearing lambs unless they had feed for them. There was a law which provided for the punishment of those guilty of creulty to animals, and he had often thought it was a pity it could not be applied to graziers and farmers who allowed their stock to starve. The paper was well discussed, there being much difference of opinion on the subject of breeds to keep.

Congress.—Members favored Congress meetings being started on Tuesday morning of Show week.

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AGRICULTURAL PUBLICATIONS.

The following publications have been issued by the Department, and are available for distribution at prices mentioned:—

Vinegrowers' Manual, by A. Sutherland, 6d.; posted, 7d.

Reports of Conferences of Australasian Fruitgrowers held at Brisbane and Wellington, 1s. each, or 1s. 3d. if posted.

Journal of Department of Agriculture of South Australia, 1s. per annum, in advance; 3d. per copy.

Any of the following Bulletins and Leaflets may be obtained by sending a penny stamp for postage:—

Agricultural Miscellaneous: Notes on South Australian Milling Wheats; Effect of Formalin and Bluestone on the Germination of Seed Wheat; Milling Characteristics of Australian Wheats; Semi-arid America—Its Climate Compared with that of South Australia; Agricultural College, Roseworthy—Harvest Reports; Agricultural College, Roseworthy—Reports on Permanent Experiment Field; Value and Aims of Plant Pathology; Rust-resistant Wheats; Reports on Agricultural Experiments; Noxious Weeds; The South Australian Wheat Yield, season 1907-8; Improvement of Cereals; Roseworthy Agricultural; Dry-farming in America.

Chemistry and Soils: Soil Surveys; Available Plant Food in Soil; Reclamation of Land.

Horticulture: Select List of Fruit-trees; Preserving, Canning, and Drying Fruits; Fruit-preserving for Domestic Supplies; The Lemon in Sicily; Notes on the Olive; Defects in Export Apples; Apple Mussel Scale; Curculio Beetle; Valuable Grape for Export; Cider-making; Some Notes on Almonds; Production of Early Tomatoes; When to Apply Bordeaux Mixture; Fertilisation of Orchard Lands; Fruit Flies; Fruit Maggot-fly Pests; The Codlin Moth; Fruit-drying for Beginners.

Stock: Suggestions to Enquirers *re* Stock Complaints; Anthrax; Influenza and Strangles in Horses; Stomach and Bowel Disorders of the Horse; Pig-breeding and Bacon-curing; The Branding of Stock; Preparation of Small Clips for Market.

Poultry: Chicken-pox and Roup in Poultry.

Dairying: Milk-testing with Babcock Tester; The Dairy Cow; Taints and Flavors in Dairy Produce; Milk and Butter Production; Milking of Cows; List of Dairy Factories; Experiments in the Hand-feeding of Cows; Instructions for Milk and Cream Suppliers.

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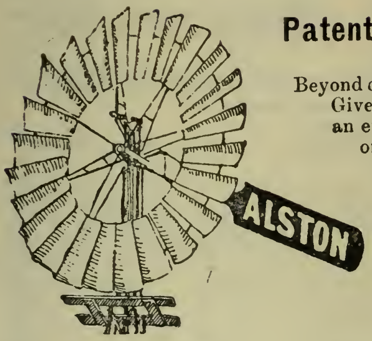

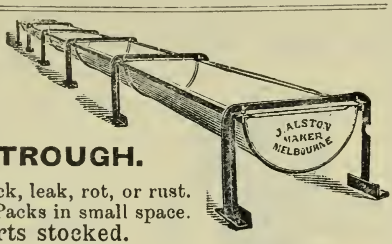

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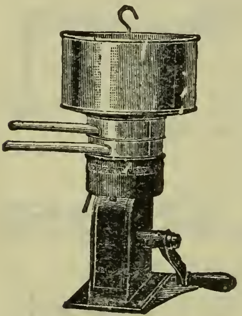

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Cowell Bros. & Co.,

BUILDERS' AND WHEELWRIGHTS' REQUISITES A SPECIALTY.
GALVANIZED IRON—PLAIN AND CORRUGATED, CURVED AND FLANGED.
DIRECT IMPORTERS OF ALL CLASSES OF IRONMONGERY.
MANTELPIECES, ALL DESIGNS.
PAPERHANGINGS, A LARGE VARIETY.
BUGGYWARE, WELL-SEASONED.

Timber Merchants and Ironmongers

Quotations Given.

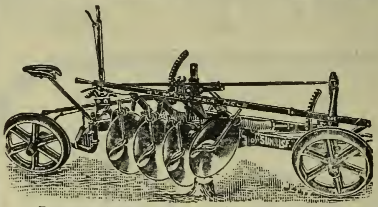
'PHONES—Adelaide, 1233.
Norwood, 253, 710, 2045.
Port, 121.

Country Orders PROMPTLY AND CAREFULLY EXECUTED.

PRICE LISTS GRATIS ON APPLICATION.

Victoria Square—Adelaide.
New Dock—Port Adelaide.
Head Office—Parade, Norwood.

Visitors to the Sept. Show are cordially Invited to Inspect our Stock.



Get the SUNSHINE HABIT

It puts prosperity within your reach.

Your success is measured largely by the way you break up the ground, till it, sow it, and finally harvest the ripened crop.

Implements and machines that do quick work, good work, are easy on horse and man, and those which last long are what you want.

You'll find the Sunshine products full of these points. They are up to date, and contain the best brains, skill, and material money can buy.

Get the happy habit of using Sunshine Implements and Machines.

They are the better kind.

No dull days when you have Sunshines.

Put the Sunrise Stump-jump Disc Plough in any ground—hard, soft, stony, or stumpy—and it will do better work than you thought possible.

The perfect construction and excellent mechanism of the Sunrise are never affected by obstructions, rough usage, jolts, or jars.

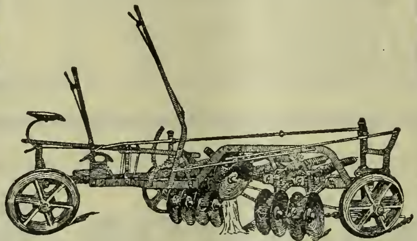
Its work is thorough—absolutely impossible to the ordinary plough.

Easily handled, light draught. 2, 3, 4, 5, or 6 discs. Adjusted quickly.

Write for Booklets and Leaflets on Stump-jump Disc Ploughs and Cultivators.

The Sun-Twin Stump-jump Disc Cultivator.

Does not ridge the land.
Made in the same careful manner as the successful Sunflower Cultivator.



It does work equally as good, cuts all one way, makes a perfect seed-bed, jumps stumps and stones without increasing the pressure on discs.

Easy to steer; levers operated from driver's seat.

No side draught. Width of cut, about 5 feet. Strong and rigid; it lasts and works without complaint.

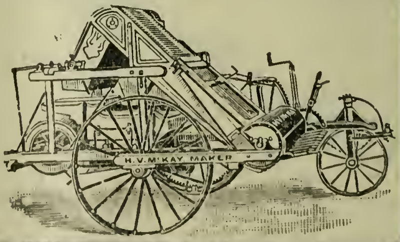
All Implements are tested before leaving the big SUNSHINE Factory. Good Work guaranteed.

"5 Points on Sunshine Successes"

Is the title of a new leaflet about the Sunshine Harvester. If interested, just drop a postcard, and it will be sent first mail. The "Sunshine" this year is better finished, better made, and better equipped than ever before. Is has already won a name for its work, worth, and wonderful reliability—but all previous praise will be covered by this year's beautiful machine.

Order early, or make up your mind to get a Sunshine in good time.

H. V. McKAY, Sunshine,
and at VIC.,
54-56, North Terrace,
ADELAIDE.



Butler, Shannon, & Co.,

AUCTIONEERS, STOCK, STATION, LAND, AND FINANCIAL AGENTS,

15, Davenport Chambers, opposite Savings Bank, Currie St.

Hold Sales as follows:—

ADELAIDE MARKET—Fat Cattle, every Monday. Sheep, Lambs, Pigs, Calves, and Dairy Cattle, every Wednesday.

Horses—Paltridge's Bazaar every Wednesday, at 2 o'clock.

BRANCHES (at which Sales are held monthly)—

BOOLEROO CENTRE—3rd Thursday.
HAMLEY BRIDGE—4th Tuesday.
MAITLAND—2nd Friday.
MURRAY BRIDGE—1st Monday.
PETERSBURG—4th Friday.
STRATHALBYN—2nd Thursday.
WIRRABARA—2nd Thursday.

Sales undertaken in any part of the State.

All Stock assigned to us will receive our personal attention.

M. G. ANDERSON,

MERCHANT AND SHIPPING AGENT,

12, Waymouth Street.

Also Special Dairy Produce Sale-rooms, Waymouth Street, Adelaide.

Exporters of FROZEN MEAT, TALLOW, BUTTER, FRESH AND PRESERVED FRUITS, AND OTHER PRODUCE.

Lambs.

Farmers can secure best results by selling their Lambs through me, as I am always in a position to treat for the entire flock.

Fresh Fruit.

Apples and Pears either purchased outright or consigned on account of growers. Highest prices guaranteed.

Dried Fruits.

Apple Rings
Apricots
Peaches
Pears
Currants
Raisins
Sultanas
Almonds

Purchased in any quantities, or sold on clients' account in other States or Oversea. Prompt settlement.

Agent in South Australia for THE ORIENT-ROYAL MAIL LINE OF STEAMERS.
THE CHINA NAVIGATION COY.
UNION MARINE INSURANCE COY., LTD.
ROYAL EXCHANGE ASSURANCE CORPORATION.

GOVERNMENT PRODUCE DEPARTMENT.

WHAT THE DEPARTMENT IS PREPARED TO DO FOR THE PRODUCER.

LAMBS, MUTTON, PORK, WHEAT, WINE, FRUIT, POULTRY, EGGS, Prepared, Shipped, and Stored, or Sold in London.

Advances made on all consignments at discretion of Minister.

CHEESE Cured and Stored.

CREAM and HONEY Purchased on Test

SCALE OF CHARGES.

Produce.	Treatment, &c.	Extra Storage.
Lamb	0.4d. per lb., including handling, freezing, and four weeks' storage and shipping.	1d per carcass per week or any portion thereof.
Mutton	0.35d. per lb, including handling, freezing, and four weeks' storage and shipping.	1d per carcass per week or any portion thereof.
Butter	3½d. per box, including handling, freezing, seven days' storage and shipping.	1½d. per box per week or any portion thereof.
Fruit— Apples, Pears, Oranges	1½d. per case, including handling, cooling, seven days' storage, and shipping.	1d. per case per week or any portion thereof.
Eggs— Shipment	3½d. per doz., which is a consolidated charge, covering all shipping and selling charges.	
Storage	3d. per case for first week for Eggs in shell packed in cases containing 25doz.	2d. per week or any portion thereof.
Eggs in pulp	3d. per case (not exceeding 2ft.) for first week.	2d. per week or any portion thereof.
Cheese	3d. per cwt., including handling and cool storage for seven days.	2d. per cwt. per week or any portion thereof.
Butter Factory— Charges for treatment of Cream	1d. per lb. for chilling, churning, and printing. 5 per cent. commission for selling, &c. 2d. per can cartage to and from factory.	
Wheat	Actual expenses. Must be shipped from Port Adelaide.	

Wharfage will be charged on all produce shipped over Department's Wharf.

P.E.D.

POULTRY MEAL
Manufactured and
now on Sale.

Communications to be Addressed—
THE MANAGER, PRODUCE DEPARTMENT,
VICTORIA BUILDINGS,
VICTORIA SQUARE,
ADELAIDE.

TELEPHONE 746, ADELAIDE; 348, PORT.

POULTRY BREEDERS.

On application (personal or by letter) to the Poultry Expert, Crown Lands Office, Adelaide, Advice on Feeding Breeding, Housing, &c., Poultry will be given.

Arrangements made for Lectures in Country Districts, and Visits of Inspection paid to Poultry Yards and Farms.

TABLE POULTRY

The Government Poultry Dresser and Grader will visit Towns and Shows, and give demonstrations in Dressing Poultry for Cooking.

GOVERNMENT POULTRY STATIONS.

Inspection is invited of Stock, methods adopted, also Laying Competition at Roseworthy.

The Expert will personally conduct parties of visitors to the Roseworthy Poultry Station. Residents in the neighbourhood of Kybybolite, Goolwa, Orroroo, should inspect the Government Poultry Stations in those localities.

EGGS AND POULTRY FOR EXPORT.

Information as to Quality, Packing of Eggs for the Oversea Trade.

Instruction as to Age, Weight, and methods of Fattening Poultry for the English Market.

NOTE.—When forwarding Eggs or Poultry to the Government Produce Depôt, Port Adelaide, an intimation of such consignment should be addressed to "The Manager, Government Produce Department, Adelaide"

For further particulars *re* the above apply to—

THE POULTRY EXPERT,
CROWN LANDS OFFICE,
ADELAIDE.

TELEPHONE 302.]

GEORGE WILLS & CO.

(Or their Agents throughout the Country)

SUPPLY

Fertilizers of all Descriptions

UNITED ALKALI CO.'S ENGLISH.

Adelaide Chemical Co.'s "TOP" Brands.

Wallaroo Phosphate Co.'s Brands.

BEST QUALITY DRY AND FREE-RUNNING SUPERPHOSPHATE TO GO THROUGH DRILLS.

CONCENTRATED SUPERS, THOMAS' PHOSPHATE POWDER, BONEDUST, BONE and POTASH MANURES.

Anchor Fencing, Fencing Droppers and Standards, "Wheel" Brand Special Temper Wire (will not stretch), Ordinary Wire (Black and Galvanized), Barbed Wire, Wire Netting, Netting Fasteners, etc.

GALVANIZED IRON

("Blackwall" 1st Quality and "Key" Brands).

Cornsacks, Woolpacks, Branbags, Strychnine, Murton's Sheep Dip, "Slayo" Rabbit Poison, Rabbit Traps, Cartridges, Calf and Lamb Feeders.

Hoop Iron and Steel, Oils, Paints, Cookson's White Lead, Binder and Sewing Twines, Blue Twine a Speciality, Nobel Hamburg Explosives, Cement, etc.

Genasco Ready Roofing.

The Cheapest and Best Roofing Material in the Market.

The Cheapest and Best Floor Covering in the Market.

Cheaper and More Easily Fixed than Galvanized Iron.

Does Not Dry Out, become Brittle, and Crack.

Holden & Frost,

GRENFELL STREET, ADELAIDE.

Sole Agents

FOR THE

NEW "ELECTRIC-WELDED"

Plough, Lead, and Body Chain.

Absolutely the best Chain on the Market.

The following is the test of ¼-inch Chain by Lloyd's Proving-House. Broke at 2 tons 7 cwts. 2 qrs. in the steel.

The Breaking Strain applied under the British Government Contracts for ¼-inch. Ordinary welded Cable Chain is only 1 ton 10 cwts.

Every Pair Guaranteed and replaced free if broken under fair conditions of service.

Also Sole Agents and Patentees

FOR THE CELEBRATED

"Fairplay" Shifting Draft Plough and Leading Hames.

The Best in the World. Ask your Saddler for them.

If unobtainable, apply to HOLDEN & FROST direct.

WM. DEAN & SON

(G. H. DEAN),
DAVENPORT CHAMBERS,
CURRIE STREET,

Stock Salesmen.

SALES OF FAT CATTLE every MONDAY.

SALES OF FAT SHEEP and LAMBS} every WEDNESDAY.
„ PIGS and CALVES}

in The Adelaide Market Yards.

All Stock consigned has our personal supervision.

Stud and Store Stock for Sale.

NOTE.—Send us particulars of your FAT LAMBS fit for export. We can send you a buyer on the station, or sell them by Public Auction in the Adelaide Market.

MT. LYELL REGD. M.L. BRAND **SUPER**

DRY FREE RUNNING

The Mount Lyell Brand is now widely and favourably known to the Farmers of this State.

STANDARD SUPER, 36 - 38 %

ADELAIDE SUPER, 30 - 32 %

Grass, Orchard, Onion, and all Special Manures.

PRINCIPAL AGENTS FOR SOUTH AUSTRALIA,

JAMES BELL & CO.

LOCAL AGENCIES EVERYWHERE.

Burford's Oils For all Classes of Machinery and Engines.

Special

"Hub" Brand Harvesting Oil.
Binder Oil. Separator Oil.

Refiners, Blenders, and Importers of the Finest Russian Oils.

W. H. Burford & Sons, Ltd.,

ADELAIDE.

BURFORD'S

"Magic" Egg Preserver.

"The simplest and most effective preservative for eggs is Burford's "Magic" Egg Preserver."

EGGS WILL KEEP FOR TWELVE MONTHS.

Directions.—To One Part of "Magic" Egg Preserver add Six Parts of Water and stir well. Keep the eggs covered with the Preserver, and in a cool place.

ASK YOUR GROCER TO PROCURE FOR YOU.

In Half Gallon, One Gallon, and Four Gallon Tins.

Larger Crops

Have been grown by farmers in the semi-arid districts of America by the use of the

Campbell Sub-Packer,

and there is no reason why the same result should not be obtained in South Australia.

Larger Profits

Are what you want, and if by sub-packing the yield can be increased by even a few bushels, the cost of the machine and labour will be worth while.

Sub-packing the soil produces more moisture in the soil to aid in carrying the growing crop over long dry periods.

Experiments conducted at Hammond by the Department of Agriculture resulted in an increased yield of 2 to 3 bushels on soil which was sub-packed after ploughing.

Write us for particulars of the **CAMPBELL Sub-Packer.**

NORMAN & CO., Bank Street,
Adelaide

Wallaroo Super

(36-38%)

Y.P. Super

(30-32%)

Obtainable from

Australasian Implement Co., Clutterbuck Bros.,
John Darling & Son, Elder, Smith & Co., Ltd.
Geo. Wills & Co., or their Agents.

E. & W. HACKETT

OFFER NEW SEEDS OF

Phalaris commutata
Rhodes Grass
Paspalum dilatatum
Sheep's Burnet Lucerne
Trifolium subterraneum
Trifolium Incarnatum (Crimson Clover)
Hedysarum or "Sulla" Sainfoin
Genuine Essex Rape (English Seed)
Thousand-Headed Kale
Seed Wheat (best sorts)
Beardless Medeah
Tares or Vetches

Hackett's Economic Smut Dressing

A Convenient and Effectual Remedy against Smut, 8d. packet.
Costs One Penny per bushel.

SEEDSMEN,
NURSERYMEN, ETC.

73, Rundle Street, Adelaide, S.A.

TOP TRADE MARK **BRAND**

GRASS MANURE.

It pays handsomely to use this on pasture lands. Try it, and you will be astonished how much better the feed will be. You can carry more stock and they will do much better on land dressed with our special GRASS MANURE.

ADELAIDE CHEMICAL AND FERTILIZER CO., LIMITED.

R. BURNS CUMING, Managing Director,
Currie Street.

STASSFURT POTASH MANURES

are especially valuable in

SOUTH AUSTRALIA

FOR ALL

VINES AND FRUIT CROPS.

Improved Quality as well as Increased Quantity of Produce always obtained by using 1cwt. per Acre of

Sulphate of Potash (96°/ₒ),

OR

Muriate of Potash (95°/ₒ).

The following are examples of results of actual experiments conducted last Season, under ordinary working conditions:—

VINES.

	No Manure.	Incomplete Manure.	Complete Manure (WITH POTASH).
Yield per Acre.	T c. q. 2 15 0	T. c. q. 2 17 1	T. c. q. 3 4 2
Value of Increase due to Manure.	—	£0 17 3	£8 14 3

TOMATOES.

	No Manure.	Incomplete Manure.	Complete Manure (WITH POTASH).
Yield per Acre.	½ Cases. 45	½ Cases. 232	½ Cases. 340
Value of Increase due to Manure.	—	£25 8 6	£40 0 6

OBTAINABLE FROM ALL MANURE MANUFACTURERS AND DEALERS.

Scientific Information and Publications Supplied Free by

THE AGRICULTURAL OFFICES OF

THE POTASH SYNDICATE, BRIDGE STREET, SYDNEY.

Chittanoga

(Registered).

THE GREAT MEDICINE FOR THE TREATMENT OF

"Dry Bible."

Sold in 1-lb. Packets at 4s., post free, 4s. 9d., from

Chittanoga Factory,
Balaklava, South Anstralia.

Wholesale Agents:

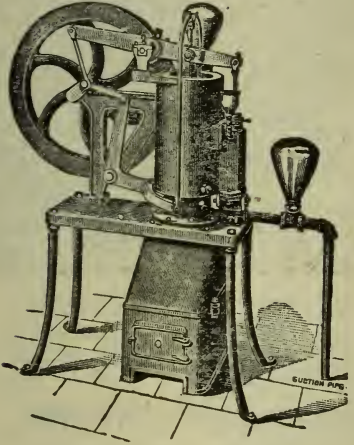
A. M. BICKFORD & SONS, LIMITED,
ADELAIDE.

Write to Factory for Pamphlet and Testimonials.

RIDER or ERICSSON

HOT-AIR

PUMPING ENGINES


SUCTION PIPE.

For STATION, FARM, or DAIRY, are the MOST ECONOMICAL, RELIABLE, AND SIMPLE Machines on Earth.

NO Skilled Mechanic Required.

Over 35,000 in Daily Use all over the world.

An investment of £25 16s. will secure a machine capable of supp'ying a large establishment or hotel with ample and constant water service.

Full Stocks kept on hand.

Sea Transport Paid to Adelaide.

WRITE FOR CATALOGUE TO

Australian Rider-Ericsson Engine Company,
21, PITT STREET, SYDNEY.

By Installing a Telephone System

of your own you can have prompt communication with nearest town relations, friends, doctor, agent, etc.

UNBEHAUN & JOHNSTONE

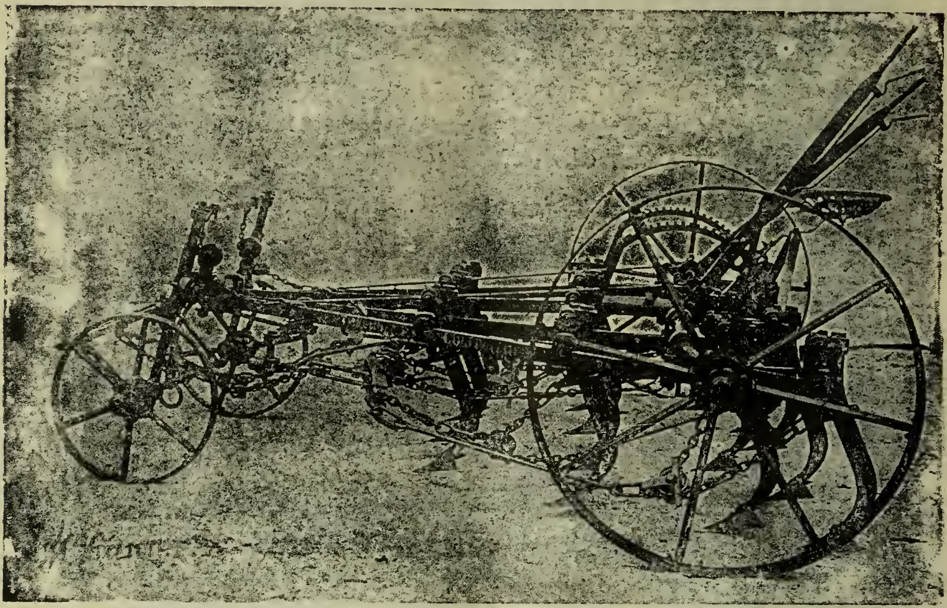
are erecting a lot of private systems in the country, and solicit your enquiries.

Address—100, Currie Street, City.

Telephones
900 & 810

Hamley Bridge Implement Factory

J. G. TRAEGER, Proprietor.



NOTE THIS.—The "Giant" Cultivator has Patent Adjustable Tynes which can be shifted (so as to work correctly) if injured, and not leave a BONE in your Cultivating. No Patches Missed.

ALSO—All Tynes Swing on Pivots, and the Draught is directly on the Tyne, so that there is no fear of them sticking when pushed back, and is a Free Jumper, jumping over anything in moderation, and have two equalizers, so that each half of the Tynes works independently, viz., the Draught thus giving it more relief than any other device.

Maker of Patent "Giant" Stump-jump Cultivator.

Acknowledged by hundreds to be the most up-to-date Implement on the market.

Made in 9, 11, 13, 15, and 17 Tynes.

Made of Best Steel throughout. Very Light of Draught.

Scores of Testimonials from Farmers who have used them. Pronounced by many to be the best Implement they have ever used. Proof of its ability is the wonderful increase in the output each year. This Implement is known all over the Commonwealth as a real **"CLINKER."**

A Few Testimonials.

[Copy from L. O'LOUGHLIN, Esq., M.P., who purchased four Cultivators ("Giant Pattern) last season.]

Your Cultivators gave every satisfaction.—Yours sincerely, L. O'LOUGHLIN.

[Copy of Letter from D. FRENCH.]

I have finished Cultivating my Fallow with the New "Giant" Cultivator I got from you this season, and am perfectly satisfied with it. As I have had 25 years' experience amongst Stump-jump Implements, I think your "Giant" Cultivator one of the best I ever worked, both for lightness of draught and strength. I can do fifteen acres a day without hurting the horses, and it will face anything in reason you like to put it to, and if your Ploughs are as good as your Cultivators, I mean to have one later on. Yours faithfully, D. FRENCH.

To Mr. J. G. Traeger.—Dear Sir.—The 15-Tyne "Giant" Cultivator which I purchased from you has given every satisfaction, working all kinds of ground thoroughly. It has worked two seasons, and done about 1,000 acres. Yours truly, J. FORREST.

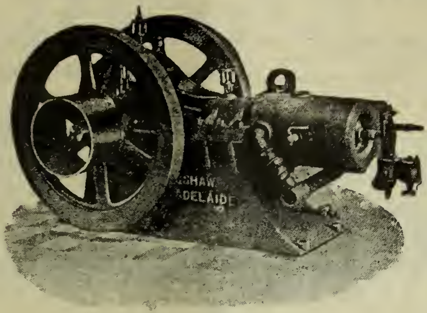
If you require a Tip-Top S.J. CULTIVATOR, don't fail to let me know.
Price-lists, etc., on application. Terms can be arranged.

NOTE THE ADDRESS—

J. G. TRAEGER, Hamley Bridge, S.A.

The Farmers' Engine.

The "BAGSHAW" Petrol Engine has been specially designed to suit the requirements of S.A. Farmers.



It will drive a No. 4 "BAGSHAW" Cutter, and cut 20 to 30 cwt. per hour; also Winnower, Saw, Grinder, Sheep Shears, Pump, etc.

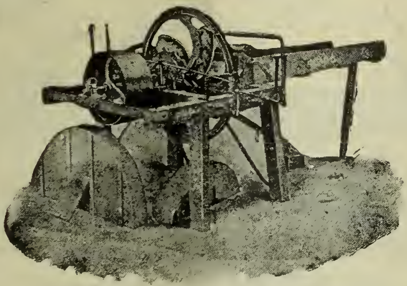
Don't Buy an Engine before seeing Bagshaw's Booklet. Free for the asking.

GENUINE

"Bagshaw" Chaffcutters.

The Outcome of Half a Century's Experience in Chaffcutter Manufacture.

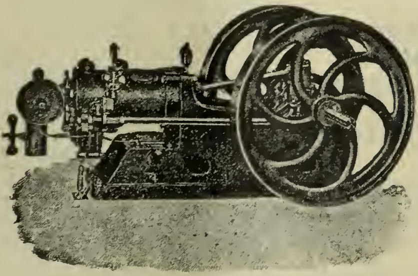
Over 90 per cent. of the Chaff cut in S. A. is cut by "BAGSHAW" CUTTERS.
The Bagshaw guarantee stands behind every Machine turned out.



These Machines can be fitted with Elevators of any kind, Screens, Baggers, etc., and are made Portable, Semi-portable, or Combined with other Machines.
Send for a Free Catalogue.

The "Allan" Oil Engine.

Twelve years in use, and not a single Engine removed for being unequal to guarantee, or unfit for the work undertaken.
A unique record.



Water Jacket cleaned without removing any working parts of Engine.
Special Safety Oil-feed, giving reduced consumption.

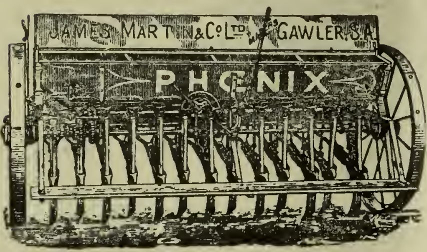
Don't Buy another Engine and afterwards wish you had bought an "Allan." See the "Allan" before buying. The more thorough the comparison, the better chance we have of selling you.

J. S. BAGSHAW & SONS, LIMITED,
ELIZABETH STREET, ADELAIDE

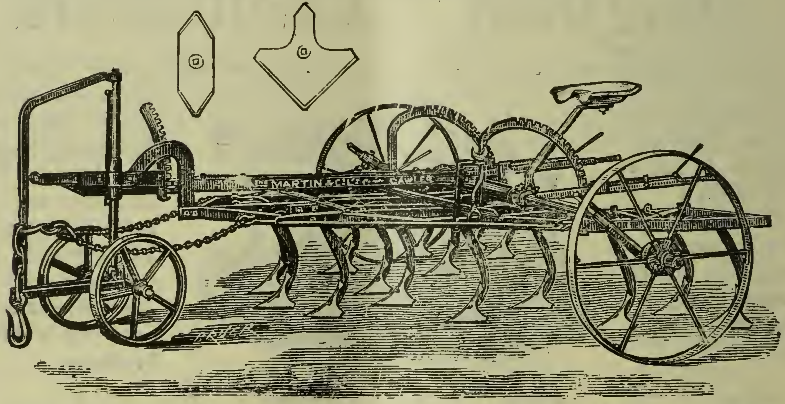
THE GAWLER Implement Manufacturing Company, Limited.

Agricultural Engineers,

Registered Office - - GAWLER, SOUTH AUSTRALIA.


JAMES MARTIN & Co. Ltd. GAWLER S.A.
PHŒNIX

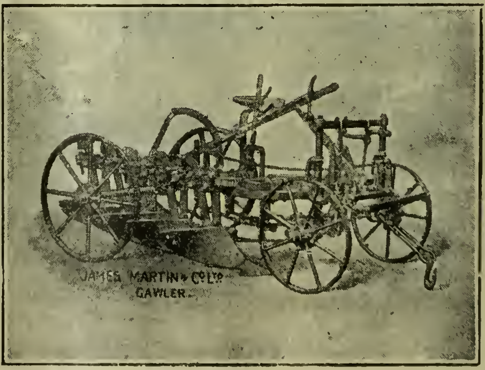
The above Company having purchased from the Liquidator the Agricultural part of the extensive business of James Martin & Co., Ltd., including the Premises, Plant, and Patterns, together with their large and assorted Stock of Steel and Well-Seasoned Timber, Felloes, Spokes, Naves, etc., used in the manufacture of Agricultural Machinery, have pleasure in notifying the numerous Customers of the late firm that they are prepared to supply all classes of Agricultural Goods at Reasonable Rates.



Harvesters,
Strippers,
Winnowers,
Wagons,
Trollys, Drills,
Ploughs,
Cultivators.
Chaffcutters,
Horseworks.

And other Goods, including Shares of every description and Fittings, etc.

Plough Cultivator Shares a Specialty.



WRITE FOR PARTICULARS AND PRICES.

JAMES FERGUSSON,

Late Director J. Martin & Co., Ltd., MANAGER AND SECRETARY.

Malthoid

ROOFING.

WATERPROOF
AND
WEATHERPROOF.
WILL NOT DRY OUT
OR ROT.

Made from a PURE MINERAL which the Manufacturers have been using for over 25 Years with very satisfactory results.

MALTHOID HAS BEEN USED EXTENSIVELY IN AUSTRALIA,

— Some New Buildings Roofed with it are —

REGISTER BUILDING, ADELAIDE; NEW RAILWAY STATION, MELBOURNE; COMMERCIAL TRAVELLERS' CLUB, SYDNEY, and many others.

MALTHOID FLOORCLOTH is Unequalled for Covering Earth, Wood, or Cement Floors **Outlasts Linoleum.**

— Write us at once for full particulars —

Norman & Co., BANK STREET,
ADELAIDE.

Metters' All-steel Wind Motors.

Have proved without a doubt they are cheaper, stronger, and more serviceable than any other.

Write for
PRICED CATALOGUE
Relating to all Irrigation
Work to

METTERS LIMITED,
142, Rundle St.,
ADELAIDE.
Also Sydney and Perth.

TOP TRADE MARK **BRAND**

MINERAL SUPER **WHEAT MANURE**

GUANO SUPER **BONE SUPER**

S. A. SUPER **GRASS MANURE**

All free-running and give good results.

ADELAIDE CHEMICAL AND FERTILIZER CO., LIMITED.

R. BURNS CUMING, Managing Director,
Currie Street.

LINKE, NOACK & CO., LTD.,

OF FREELING and MOCULTA, S.A.

SHOWROOMS, 103, CURRIE STREET, ADELAIDE.
(Adelaide Manager, THEO. MARKS.)
Telephone No. 2362. Cable Address: "Linoak," Adelaide.

Implement Manufacturers, Machinists, Agricultural Engineers, Merchants, etc.

SOLE AGENTS FOR
D. & W. Gibbs Ltd., London, Famous Sheep Dip, Fluid, and Powder.
" " " Concentrated Carbolated Creosote Disinfectant.
John Holmes & Co. Ltd., Indentors & Wholesale Merchants, Wellington, N.Z., and London.

BROKERS for Grain, Fodder, Firewood, and all Agricultural Products.

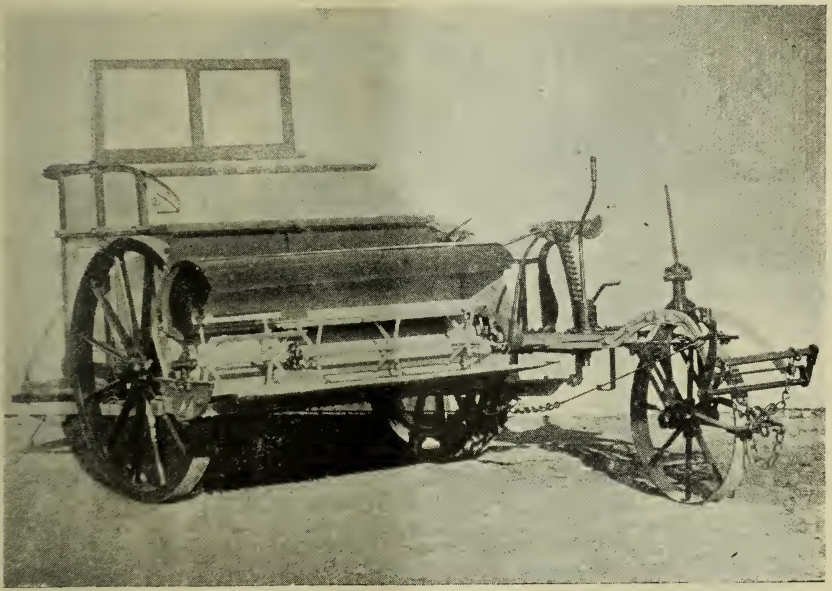
WE SUPPLY all Requisites for Station, Farm, Garden, and House at the lowest possible prices.

OUR FACTORY is equipped with all the latest contrivances for turning out speedily "Linoak" Disc Plows, "Linoak" Disc Cultivators, Ordinary S.J. Plows, S.J. Paring Plows, Patent Cultivators, Patent Duplex S.J. Steel Harrows, Steel Scoops, "Central" Strippers (both Damp Weather and Ordinary), English Wagons, German Wagons, Spring Vans, Hay Trollies, Ordinary Trollies, Vehicles of all descriptions.

Shearer's Strippers

Have many useful innovations, which have been well tested with universal satisfaction to all who have used them. These Machines are made in two types, to take 5ft. and 6ft. respectively, and both are fitted with a Patent Rock Draught Attachment, and a Patent Device by which the wheat or other grain is loaded on the near side and the chaff on the off side. This leaves the weight of the load on the near (driving) wheel, directly behind the horses, rendering these Machines the Lightest in Draught, and also, owing to the extra weight on the driving wheel, the Most Efficient in Thrashing.

☞ **They strip cleanest. They are lightest in draught. They do not lose grain.**
☞ **They are built of the best materials. They want little or no repairs.**
☞ **They last longest. They are made strong to stand rough, stumpy ground.**
☞ **No Machine equals them in durability, lightness of draught, and efficiency of work.**



SHEARER'S TWO-PART COMB AND BEATER STRIPPER.

Takes 6ft. of Crop, and does its work in every particular in a most effective manner, giving satisfaction to all who have used this Machine. The 5ft. Machine does not have centre bearing in Beaters.

The new Patent Damp-Weather Thrasher fitted to our Machines is a great improvement on other makes.

The Spiral Spiked Roller revolves in the same direction as the grain as it leaves the Beaters, and therefore does not knock the grain back into the Beaters as in some of the other Machines.

The Damp-Weather Appliance can be easily thrown out of gear while Machine is in motion, and is so constructed that should a stick or other foreign substance pass through the Beaters the Damp Weather is self-releasing, and allows the obstacle to pass through without damage to the Machine.

The Belts are so arranged that they can be worked very loose, and consequently the Machine runs extremely light. Stripper Castings are all lettered and numbered, and duplicate parts can be obtained at any time. Strippers are built at our Mannum Factory.

TESTIMONIALS.

"Palmer. Messrs. J. & D. SHEARER, Mannum. Dear Sirs.—I have used the Two-Part Comb and Beater Stripper for two harvests, and am in every particular satisfied with it. My land is very sandy; I am, therefore, placed in a good position to judge its lightness of draught, and find it no heavier than an ordinary 4ft. 6in. Machine of pony build. This 6ft Machine goes straight through the sand, and does its work well. It is well worth the money, and I can recommend this class of Machine to farmers without hesitation.
Yours faithfully, H. STEICKE."

"Yarrock, *via* Kaniva, Victoria. Messrs. J. & D. SHEARER, Mannum. Gentlemen.—The 5ft. Damp-Weather Stripper I purchased from you last season gives me satisfaction. It does good work, is light in draught, and draws straight after the horses. Yours truly, W. C. HOBBS."

We do not ask you to buy a **SHEARER STRIPPER** because there are no other kinds to spend your money for. *We do ask you to buy them* because they combine *all the Latest Improvements in Material and Construction,* which no discriminating buyer can afford to disregard.

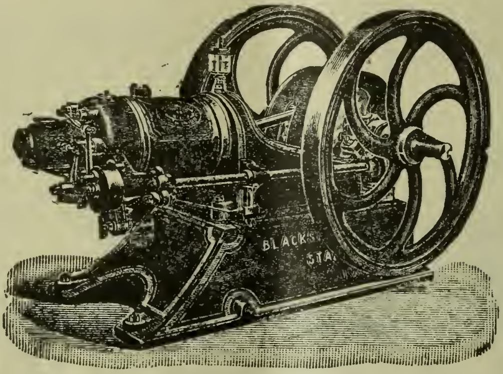
CLUTTERBUCK BROS.

Are Sole Agents in South Australia for

The BLACKSTONE OIL-ENGINE

which has successfully solved the problem of a **cheap, simple, and efficient** motive-power, and embodies **the Latest Improvements in Oil-engines.**

Many hundreds in use in South Australia **on farms, in chaff-mills. shearing-sheds, and all places where a cheap and effective driving-power is required.**



Simple.

Economical.

No lamp needed when working.

Efficient.

Reliable.

Stationary and Portable.

At the latest Engine Trials, held under the auspices of The Highland and Agricultural Society of Scotland, **The Blackstone gave the best results.**

The Premier Gas-engine and The Mond and Mersey Producer Gas Coy.,

Sizes from 25 to 12,000 b.h.p.

Burgon and Ball Sheep Shearing Machinery.

Send particulars of your shed measurements, and we will quote you for a complete plant of the best gear on the market.

J. H. Young & Co., Ltd., have over 2,000 stands of this gear in use.

The Massey-Harris

British-built Farm Implements. World-famous on their merits.

The Massey-Harris **Binder, Harvester, Drill, Mowers, Rakes, Cultivators, Plows, and all kinds of Farming Implements.**

The Olds Gasoline Engine

Has been in successful operation for 30 years. It is up-to-date. Represents the maximum of efficiency with the minimum of trouble.

The Triumph Plows and Cultivators.

Artesian-boring.

We undertake contracts **to bore for water to any depth.** Have complete Steam, Oil, and Hand-boring Plants, and keep an efficient Staff of Experts for this work.

Full particulars on application:

CLUTTERBUCK BROS., **HINDLEY STREET,
ADELAIDE.**

Express Fire Fighters.

The Very Latest. Nothing nearly so good. 200-Gallon Flat Tank, four wheels and pole for two horses. Also single-horse Fire Fighters on two or four wheels.

Bosker Fumigators
Carbon Fumigators
Water Carts
Slop Carts
Troughing
Lamb-tail Searing Irons
Transports for Oil Engines, etc.

The Great Champion

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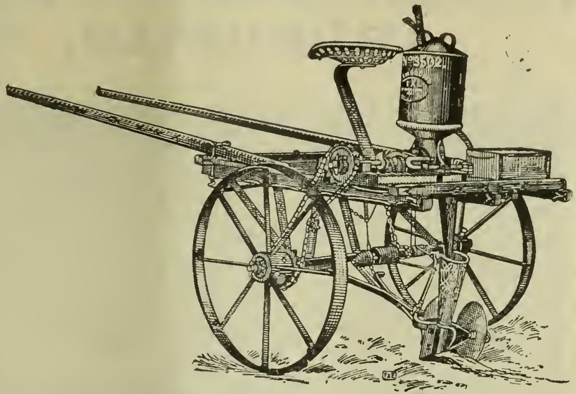
Poison Cart.

Over 5,000 in Use.
1,000 in South Australia



Buggy and Sulky Wheels, fitted with Patent Adjustable Channel Steel Tyres.
A Marvellous Invention.

ELDER, SMITH & CO., LTD.,

Sole Agents for South Australia.

GEO. E. FORTESCUE & SONS, Manufacturers, Arncliffe, Sydney.

DUNLOP RUBBER GOODS

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THE FARMER.

Seed Drill Tubes
Rubber Delivery Hose
Balata and Rubber Belting
Steam Packings of all descriptions
The Dunlop Bushman's Cycle Tyre
for rough roads.

If unable to procure the above from your Ironmonger or Storekeeper, write direct to

The DUNLOP RUBBER CO.,

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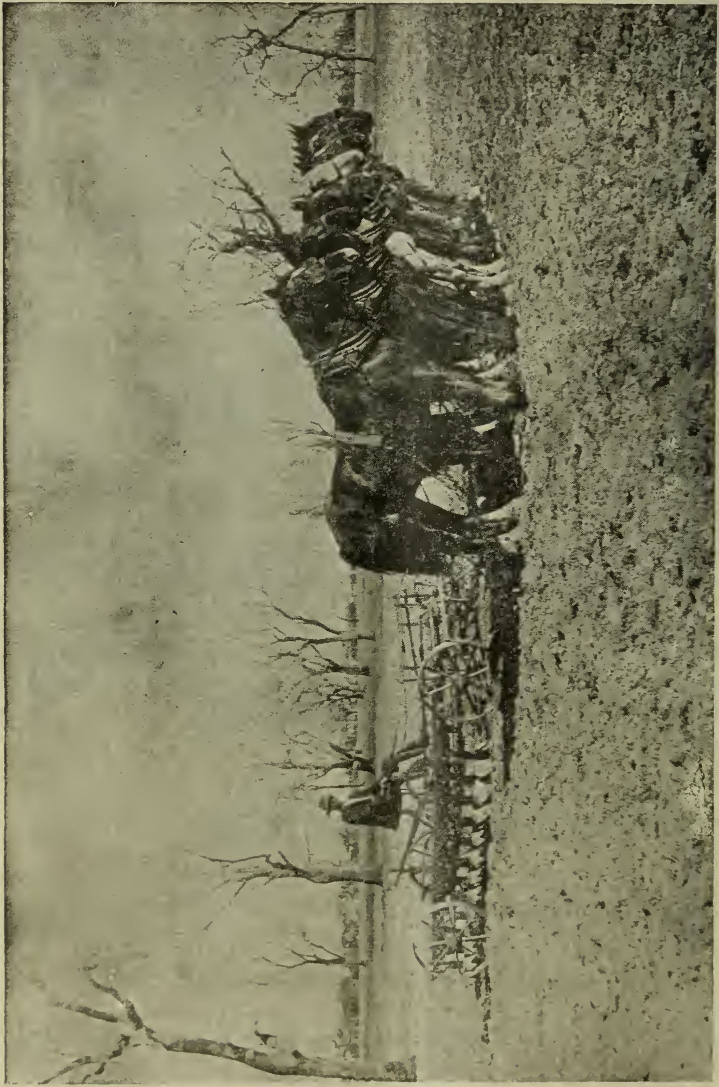
CLARENCE H. SMITH,

Agricultural Implement Manufacturer,

ARDROSSAN, S.A.



A "SMITH" 12-FURROW S.J. CULTIVATING PLOUGH turning back Fallow on the Farm of Mr. E. Ebsary, Wagin, W.A.

"SMITH" PLOUGHS have **NEVER BEEN BEATEN** at any **FIELD TRIAL** held under the auspices of a recognised **Agricultural Society.**

CROWN LANDS.

MOUNT SCHANK ESTATE.

HUNDRED OF KONGORONG, SOUTH-EAST.

Repurchased Lands in this Estate will probably be gazetted Open to Application about September next, for allotment under Closer Settlement Agreements, with covenant to purchase.

Full particulars will be published in the *Government Gazette*, and will also be obtainable, with Plans, from the Surveyor-General.

OFFICIAL LIST OF LANDS OPEN.

The attention of intending Applicants for land is directed to the Official List of Lands Open, which may be seen at the principal Post Offices, and copies obtained at the Surveyor-General's Office. The List shows the Areas, Localities, Prices, &c , of the Sections available, and the conditions under which they may be applied for.

THE LAND BOARD.

CENTRAL DISTRICT.

The Land Board will meet at the times and places specified below to take evidence from Applicants (whose Applications have been received by the Surveyor-General in accordance with *Gazette* notice) for Lands in the Central District, which were Open to Application up to 5 o'clock p m. on May 25th, 1909.

Snowtown, Tuesday, June 8th, at 3 p.m.
Moonta, Thursday, June 10th, at 10 a.m.
Kadina, Friday, June 11th, at 9·30 a.m.
Balaklava, Saturday, June 12th, at 11 a.m.
Lameroo, Monday, June 14th, at 7 p.m.
Tailem Bend, Tuesday, June 15th, at 2 p.m.
Meningie, Wednesday, June 16th, at 2 p.m.
Mannum, Friday, June 18th, at 2 p.m.
Kooringa, Friday, June 18th, at 2 p m.
Edithburgh, Saturday, June 19th, at 2·30 p.m.
Adelaide (in the Deputation Room, Government Offices, Victoria Square East), Wednesday, June 23rd, at 10 a.m.

NOTE.—Evidence for Transfers may also be given at any Meeting.

L. O'LOUGHLIN,

Commissioner of Crown Lands.

THE MORGAN PATENT

"SIMPLEX" PORTABLE BUILDINGS

MANUFACTURED SOLELY BY THE

LION TIMBER MILLS

(RICHARD HONEY).

Suitable for Mining, Engineering, Station, and Farm Buildings, and Domestic uses generally. These Buildings have no equal for simplicity of Erection and Portability.

Just think of one room being erected by one man in one hour; and four rooms in one day; and being occupied on the day of delivery. Can be put up and taken down like a bedstead.

No skilled Labour necessary.

NO MORTICES. NO TENONS. NO NAILS.

Only Coach Screws and Interlocking Joints employed.

Printed Drawings and Instructions furnished for guidance in erection.

Roofs, Walls, Floors, Doors, and Windows supplied ready painted in three-feet (3 ft.) Panels. Doors and Windows already hung to Frames, and Fitted with Suitable Hardware.

It is the only so-called portable Building that is actually portable. Can be taken down for removal in a few minutes.

The above features place the "Simplex Buildings" ahead of all others for Fishermen's, Trappers', Hunters', Shearers', and Shepherds' Huts, and for Churches, Chapels, Assembly Halls, Summer Resorts, Bunk Houses, Small Stores, Amateur Workshops, Playhouses, etc., etc.

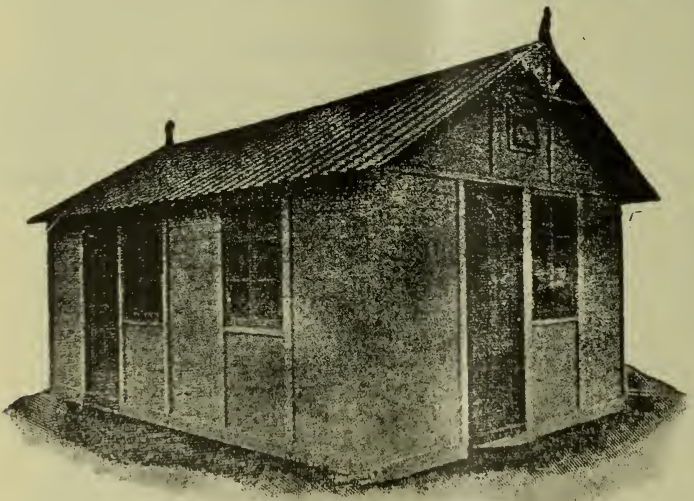
PATENT FOLDING SPRING SLEEPING-BUNKS, for Camping purposes, supplied when necessary, also Drop Tables and suitable Furniture.

Buildings painted inside and out. Sample Building on View at our Adelaide Yard.

MAKE A SPECIAL NOTE OF THIS—

Ninety per cent. (90 %) saved in labour of erection!

Just the thing for people settling on the land!



Roofs Covered with **Ruberoid**

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Catalogues and Prices on Application.

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Franklin Street, Adelaide;
Commercial Road and Lipson Street, Port Adelaide.

Sole Manufacturers in and Holders of Patent Rights for S. A. and Broken Hill.

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SUPERPHOSPHATES, &c.

As supplied to the Australian and New Zealand Agricultural Departments.

HIGHER ANALYSES.
LOWER PRICES.
VERY FREE RUNNING.

Standard Grade - - 38-40 °/₀ water soluble.
Second Grade - - 31-32 °/₀ water soluble.

Early application necessary to avoid disappointment.

Marion Guano (for Sour Soils) 50-60 °/₀. In 1 or 2 cwt. Bags.

BONE AND SUPER., GYPSUM FERTILISER, &c., &c.

Country Agents wanted where not represented.

For Samples, Testimonials, and Full Particulars, apply—

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Sole Australasian Agent.

FACTORIES: — JAPAN and PORT ADELAIDE, S.A.
[TELEPHONE, PORT 198.]

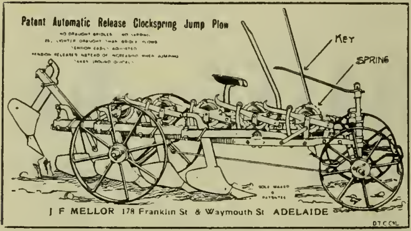
A Good Crop for 1909

Assured to every Farmer who Ploughs his ground with a

MELLOR PATENT RELEASE CLOCKSPRING PLOW,

and reaps his grain with a

MELLOR PATENT BIKE STRIPPER.


Patent Automatic Release Clockspring Jump Plow
25% LIGHTER DRAUGHT THAN BRIDLE PLOWS
TENSION EASILY ADJUSTED
TENSION RELEASES INSTEAD OF INCREASING WHEN JUMPING
TAKES GROUND QUICKLY
KEY
SPRING
SOLE MAKER & PATENTEE
J F MELLOR 178 Franklin St & Waymouth St ADELAIDE

"*PORT LINCOLN*, May 18th, 1906.—I am delighted with the 8-Furrow Clockspring Plow. I consider it is the most satisfactory implement I have on the farm. This is the second season I have worked it. CHAS. T. PARKER."

"*PENONG*, March 22nd, 1909. — The MELLOR is the lightest draught of all my Strippers. THOS. HAYES."

"*KINGSTON on Murray*, December 26th, 1908. Your Patent Bike Stripper is well worthy of a good name Runs very light and thrashes very well. A G. H. ALBRECHT"

MILTALIE, March 4th, 1909.— Herewith cheque for Patent Save-all Comb, supplied for old machine. It did its work very well W. E. HIER."

The demand is increasing daily for **MELLOR** Implements, and it is necessary for you to order early to avoid disappointment. WRITE TO-DAY.

J. F. MELLOR, FRANKLIN & WAYMOUTH STS., ADELAIDE.

TREWHELLA BROS.'
PATENT
Grubbing Jacks
Are Made in Six Different Styles.

Farmers having ROOTS or STONES to raise, or any heavy lifting to do, are requested to write for particulars to

TREWHELLA BROS., TRENTHAM, VICTORIA, or to any of the LEADING IRONMONGERS throughout the Commonwealth.

EST. 1859.

NEW ZEALAND

INSURANCE COMPANY, LTD.

This Purely Colonial Office makes a Specialty of Producers' Risks.

INSURANCE OF LIVE STOCK

against mortality arising from NATURAL CAUSES AND ACCIDENTS, as well as from the NECESSITY OF DESTRUCTION IN THE INTERESTS OF HUMANITY as the result of an accident.

The risks of Foaling, Castration, Firing, Transit by Rail or Boat, etc., can also be covered.

Every description of Employers' Liability, Personal Accident, and Fire Business (including **HAYSTACK** and **GROWING CROPS**) accepted

AT LOWEST RATES.

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LOUIS E. WILSON, Manager.

With Agents in Chief Centres. Active Agents wanted where not represented.

Direct Importers of all kinds of Timber.

Globe Timber Mills Co.

Estimates and Prices given for Fruit Cases, Drying Trays, Boxes of every description, Wood and Iron Houses, Wood Bending, etc.

All Orders have prompt and careful attention, and are charged at Lowest Possible Rates.

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A Broken Drum
Cannot be Beaten ! !

NEITHER CAN

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Plough and Scarifier
SHARES

Sold at Stores, Blacksmiths, Ironmongers.

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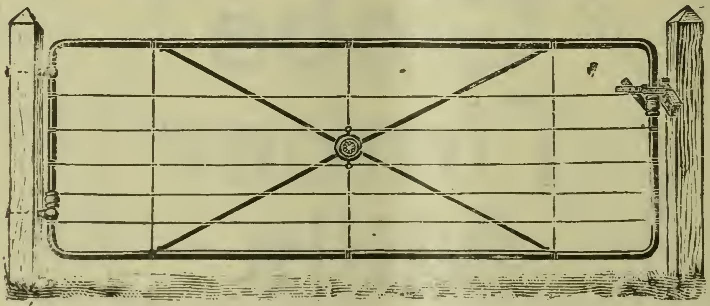
Send for Catalogue.

A. SIMPSON & SON, LTD.

"PIONEER" FIELD GATES.



BEST CHEAP FIELD GATE on the Market.
PRICE 30/- EACH.

Stronger Quality Field Gates also manufactured. Prices on Application.

A. SIMPSON & SON, LTD.
GAWLER PLACE, ADELAIDE.

Makers of Dairy Utensils, Cream Cans, Sheep and Pig Troughing, Tanks, Wheel- and Water-barrows, etc., etc.

Fry's Pack Three Cocoas.

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Have You Tried Them?

Tubular Cream Separators

We offer a CHALLENGE to ALL CREAM SEPARATORS in South Australia for CLEAN SKIMMING, EASY RUNNING, and DURABILITY.

£10. We are prepared to give **£10** to any Charitable Institution in South Australia if the "Tubular" is beaten.

The only FIRST PRIZE given in South Australia in 1907 for Cream Separators was awarded to the "TUBULAR," against all-comers.

FREE TRIAL with every machine. ALLOWANCE made for old machines.

Cash or Liberal Terms.

SOLE AGENTS—

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WAYMOUTH STREET, ADELAIDE.

HIGHEST PRICES GIVEN FOR ALL FARM AND DAIRY PRODUCE, IF CONSIGNED TO US.

Calves thrive.

THE NEW ZEALAND DEPARTMENT OF AGRICULTURE (1902) reports:—

Great advantage over other Fodders.

During the year 98 head had been reared. In addition to the skim-milk from the Separator, on which they have been mainly reared, the calves have received **SUNLIGHT OIL CAKE** mixed with the milk. This article, which is a cocoanut cake, not linseed, possesses the great advantage over pollard, oatmeal, oils, and many of the patent mixtures for calf-rearing, that it does not scour the calves. It dissolves readily in boiling water. Calves are soon brought to take to it, and after they become fond of it may be given with advantage from $\frac{1}{2}$lb. to $\frac{3}{4}$lb. per calf per diem. When the cake is used with skim-milk individual feeding is best, but where big calves are fed together in a trough it is necessary to keep on stirring the milk whilst the calves are drinking. Where this oil cake is used the calves soon show its good effects by their healthy skins and improving condition.

Healthy Skins. Improving Condition.

SUNLIGHT OIL CAKE is a food easily digested, hence it is a fodder specially adapted for calves, as young animals cannot assimilate too strong a food Calves not intended to run with their mothers should at least be given her milk for the first few days, so that they may receive the benefit of the medicinal properties contained therein.

The large percentage of oil in the **SUNLIGHT OIL CAKE** not only renders the skim-milk in the above ration much richer in fat than new milk, but its other nutritive properties are increased to an extent beyond those possessed by ordinary new milk.

For further particulars—

"Sunlight Oil Cake: How to use it,"

WRITE TO LEVER BROTHERS, LIMITED, 24 DEPT., SYDNEY.

SUNLIGHT OIL CAKE

MAKES
CALVES
THRIVE.

Pitt's Polvo Lime

An Efficient Fertilizer.

A. W. G. PITT

42, Light Square, Adelaide.

As used by the Department of Agriculture at the Parafield Experimental Station.

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W. C. R. Ward, for the last 17 years with Messrs. W. R. Cave and Co., Elder, Smith, & Co., Ltd., and Dalgety & Co,, Ltd. W. E. Acraman, late of Acraman Bros., North Coolgardie Goldfields, Western Australia, and for the last three years representing Messrs. B. Seppelt & Sons, Ltd., as their Western Australian travelling representative).

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Telegrams—"WARD-ACRAMAN, ADELAIDE."

Buying of all Station Requisites undertaken for Country Clients on best possible terms.

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Mote Patent Extension Ladder and Steps
McDougall's Insecticide Wash
McDougall's Fluid Sheep Dip
Minimax Fire Extinguishers
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Stock and Station Agents, Wool, Hide, Skin, and Grain Brokers.

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Are our Specialty.

WE IMPORT

FLAT, TEE, AND ANGLE IRON

Direct from Iron Mills,

AND

We cut and punch posts to suit any fence required

At Lowest Prices.

Many thousands of tons of Standards have passed through our hands, and

We Guarantee Satisfaction.

Send us a Trial Order, or allow us to quote you.

Price Lists of FARM REQUISITES and FURNITURE posted free to any address.

CROOKS & BROOKER,

IMPORTERS OF ALL FARM REQUISITES,

ADELAIDE OR PORT ADELAIDE.

Ploughing Made a Pleasure By using SHEARER'S Patent Stump-Jump PLOUGHS

EXTRA STRONG PLOUGH.

Made in Three Weights Standard, Light, or ExtraStrong, and from two to Six Furrows.

Also,
CULTIVATOR PLOUGHS
Eight to Twelve Furrows.

Fitted with New Patent Foot and Share and "Patent Lifting Device" and Concave Mouldboards. Thousands of these ploughs are in use, and are all giving the greatest satisfaction.

Farmers who handle them say that they are a pleasure to plough with on account of the ease with which they are adjusted either walking or riding, the good work they do, and the lightness of their draught.

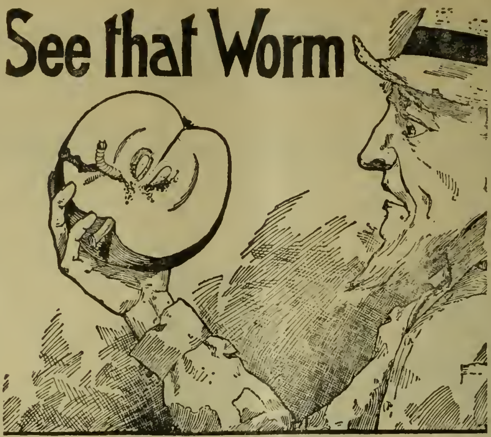
EVERY PART of our ploughs is INTERCHANGEABLE, each being made to template. All the working parts are accurately turned and fitted by skilled artisans, consequently there is nothing sloppy about these ploughs, and the best spring steel is used in building them.

We are Makers of the now Famous **Patent Wrought Steel Plough and Cultivator Shares** Stocked by all Leading Merchants

BEWARE OF IMITATIONS.

J. & D. SHEARER, MANNUM; also KILKENNY, near Adelaide, SOUTH AUSTRALIA.

MANUFACTURERS. If not locally represented, write for particulars and prices.



The way to get rid of this fellow and all his kind is to spray the leaves they feed on with

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Our Free Book on Insect Pests and Insecticides is of great practical value. Send for it

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The "Journal of Agriculture" has a circulation of 5,300 Copies monthly amongst the Cultivators of the Soil in South Australia, and consequently is a valuable medium for advertising Farm and Orchard Supplies and Requisites.

Particulars as to charges for space on application to the Department of Agriculture, North Terrace, Adelaide.